United States Department of Agriculture

Record of Decision

Malheur National Forest

Site-Specific Invasive Plants Treatment Project

Grant, Baker, Harney, Malheur and Crook Counties, Oregon

Forest Service **Malheur National Forest** **March 27, 2015**

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Introduction

This Record of Decision (ROD) documents my decision and rationale for selecting Alternative B for the Malheur National Forest Site-Specific Invasive Plants Treatment Project. Alternative B is the environmentally preferred alternative. My decision authorizes a range of integrated treatment and restoration methods that will be implemented on the Malheur National Forest. These methods include typical elements of an integrated weed management program:

- Treatment of existing infestations using one or more of seven possible treatment options;
- Early detection and rapid response to new or currently unknown infestations; and
- Restoration of treated sites.

My decision includes a non-significant amendment to the Malheur and Ochoco National Forest Land and Resource Management Plans[1] (LRMP) to add aminopyralid to the list of acceptable herbicides for use as part of the integrated treatment toolbox for invasive plants.

In arriving at my decision, I have considered the analysis that is documented in the *Malheur National Forest Site-Specific Invasive Plants Treatment Project Final Environmental Impact Statement* (FEIS) (USDA Forest Service 2015), information in the project file, and input received from the public during the course of the analysis of this project as required by the National Environmental Policy Act (NEPA) of 1969.

This ROD was developed according to requirements of the National Environmental Policy Act of 1969 (42 USC §§ 4321-4370), the Council of Environmental Quality's implementing regulations (40 CFR §§ 1500-1508), Forest Service NEPA regulations (36 CFR Part 220), and Forest Service policy in Forest Service Manual 1900, Chapter 1950, and Forest Service Handbook 1909.15.

Location and Area

The project area covers approximately 1.7 million acres located in eastern Oregon (FEIS, Section 1.3). It includes the entire 1,460,000-acre Malheur National Forest, with an additional 240,000

[1] This amendment would also apply to the former Snow Mountain Ranger District of the Ochoco National Forest that is currently managed by the Malheur National Forest. Throughout this document, when the Malheur LRMP amendment is discussed, my intent is to also apply the amendment to the portion of the project area within the Ochoco National LRMP area.

acres of the Ochoco National Forest that are managed by the Malheur National Forest. This portion of the Ochoco National Forest was previously known as the Snow Mountain Ranger District, but is now managed as part of the Emigrant Creek Ranger District. All 1.7 million acres are considered as the Malheur National Forest for purposes of this project's analysis.

The counties included in the analysis area are Grant, Baker, and Harney, with small portions of Crook and Malheur Counties. The Malheur National Forest shares boundaries with the Umatilla, Wallowa-Whitman, and Ochoco National Forests, federal land administered by the Bureau of Land Management (BLM), State of Oregon trust land, county, and private land.

Section 1.3 of the FEIS describes the project area, and includes a map of the project area comparing the level of invasive plant infestation for each 5th field watershed. Our most recent inventory data show there are 2,124 acres of invasive plants to be treated on the 1.7 million-acre project area (FEIS, Section 1.5).

Background

Invasive plants are defined as "nonnative plants" whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112). Invasive plants are distinguished from other nonnative plants by their ability to spread (invade) into native ecosystems. They spread between National Forest System lands and neighboring areas, affecting all land ownerships.

Uncontrolled invasive plants are damaging the ecological integrity of National Forest System lands. They are displacing native plants, increasing the potential for soil erosion and potentially destabilizing streams, reducing water quality and the quality of fish and wildlife habitat, and degrading natural areas. Invasive plants can have adverse effects on rare or endemic species, which could result in listing under state or federal endangered species laws.

On June 26, 2000, the Forest Service issued a Decision Notice and Finding of No Significant Impact to treat invasive plants on the Malheur National Forest. That decision allowed the use of herbicides and other methods according to regional direction developed during the 1980s. However, later that year, opponents of these treatments filed a lawsuit over the Forest Service's decision.

In December 2002, the U.S. District Court with jurisdiction over the project area concluded that the noxious weed control environmental assessment supporting the June 2000 decision was insufficient to satisfy the requirements of NEPA because it was tiered to earlier documents that the court deemed to be outdated (*Blue Mountains Biodiversity Project v. US Forest Service*, CV 01-703-HA). Thus, the court ordered us to stop "the use or application of herbicides and biological controls." We were ordered not to resume this activity until we considered, evaluated, and disclosed the individual and cumulative impacts of herbicide use in an environmental impact statement or supplemental environmental impact statement.

Although that court decision applied exclusively to the Malheur National Forest, in 2005 the Regional Forester for the Pacific Northwest Region of the National Forest System decided to amend all of the Forest Land and Resource Management Plans in the Region (Record of Decision for the *Pacific Northwest Region Invasive Plant Program: Preventing and Managing Invasive Plants*, USDA 2005). The record of decision for that amendment, referred to herein as the R6 2005 ROD, described the reasons why specific management direction was adopted. It also

explained why alternative strategies to increase herbicide use or increase emphasis on prevention were not adopted.

The R6 2005 ROD added the following desired future condition statement to the Malheur National Forest and Ochoco National Forest LRMPs:

> "....healthy native plant communities remain diverse and resilient, and damaged ecosystems are being restored. High quality habitat is provided for native organisms throughout the [Forest]. Invasive plants do not jeopardize the ability of the [Malheur] National Forest to provide goods and services communities expect. The need for invasive plant treatment is reduced due to the effectiveness and habitual nature of preventative actions, and the success of restoration efforts."

The R6 2005 ROD provided management direction intended to help forests reach this desired condition. All projects must include invasive plant prevention measures to meet R6 2005 ROD standards. Invasive plant treatments must be timely and may require several years of effort to be effective. Restoration of native plant communities through mulching, seeding, or planting may be needed to discourage reinvasion (FEIS, Section 1.4).

The R6 2005 ROD was also based on new herbicide risk assessments and information about preventing invasive plant introduction, establishment and spread, and restoring treated sites. It added new management direction, including an emphasis on early detection, and effective integrated treatment of invasive plants.

The R6 2005 ROD authorized the use of 10 herbicide active ingredients to effectively respond to invasive plant threats. The new herbicides offered many advantages over the more limited set of herbicides previously allowed, including greater target plant selectivity, less harm to desired vegetation, reduced application rates, and lower toxicity to animals and people.

The R6 2005 FEIS satisfied the intent of the 2002 court order. Management direction for invasive plant prevention, treatment and restoration, and monitoring was added to the Malheur National Forest and Ochoco National Forest LRMPs as a result of the R6 2005 ROD. In accordance with the court's injunction, we have been treating invasive plants exclusively using manual or mechanical methods on the Malheur National Forest. Manual and mechanical treatments are labor intensive and tend to be costly, and in some cases are not effective (see common control measures table 9 in Chapter 2 of the FEIS for more information). We have continued to collect, update and analyze site-specific information during the time since the court injunction.

On March 31, 2006, we published a Notice of Intent (NOI) to prepare an environmental impact statement (EIS) for this invasive plant treatment project (72 FR 62, pp. 16281 -1628, 3/31/06). This EIS will allow us to control invasive plant species on the Malheur National Forest using the amended LRMP direction. The Notice of Intent stated the purpose of the project is to bring the treatment program into compliance with the new standards, and allow for effective treatments on all sites currently mapped as well as those that may be detected in the future. Initial treatments will rely more heavily on herbicides. However, the goal of this project as invasive plant objectives are met is to reduce the use of herbicides over time.

We considered public scoping input and initiated an analysis. However, there was a delay in completing the NEPA process, so the proposed action was updated and a new NOI was published in the Federal Register on April 5, 2011, (76 FR 65, pp. 18713-18715, 4/5/11) initiating new scoping input. Scoping input from both 2006 and 2011 was used to develop issues and alternatives analyzed for the draft environmental impact statement.

Purpose and Need

The Forest needs to suppress, contain, control or eradicate 2,124 acres of invasive plants, identified from the most recent Forest inventory data, and rapidly respond to new or expanded invasive plant sites as they may occur in the future. Invasive plants are currently occupying many special places on the Forest, including dispersed and developed recreation sites, wilderness areas and wild and scenic river corridors, fish habitat, and grazing allotments. The lack of sufficient methods in the toolbox for treating invasive plants is hampering the agency's ability to maintain or improve the diversity, function, and sustainability of desired native plant communities and other natural resources that may be adversely impacted by invasive plant species. Timeliness of action is an important factor because the cost, difficulty, and potential adverse effects of controlling invasive plants increases with the size and extent of the population. The smaller the population when treated, the more likely the treatment will be effective.

There are 18 primary target invasive species within 3,070 mapped infested sites, covering about 2,124 acres (see table 1 in this ROD). The alternatives considered a variety of methods to treat these species on a range of types of sites, including roadsides, administrative sites, wilderness and riparian areas.

Decision

Based on the analysis disclosed in the FEIS and project record, I have decided to select alternative B – proposed action for the Malheur National Forest Site-Specific Invasive Plants Treatment Project. This alternative is described in Chapter 2.3.2 of the FEIS as the most cost-effective approach to invasive plant treatment while minimizing the potential adverse effects of treatment (FEIS, Chapter 2.3.2).

My decision identifies 18 invasive plant target species currently found on the Forest, and establishes invasive plant treatment objectives and effective treatment methods, including herbicides, manual, mechanical, cultural and biological control agents for each species. Additional target species may be treated as long as effective treatment methods follow project design features and herbicide-use buffers discussed in the FEIS.

Treatments will be completed following steps outlined in the integrated treatment prescriptions (common control measures) (page 11 of this ROD) and project design features and herbicide-use buffers (Attachment 1). Treatments would be adapted to changing conditions over time following the implementation planning process included in Attachment 2.

The project design features and herbicide-use buffers are intended to minimize adverse effects of treatment and follow national Best Management Practice guidelines for chemical uses in national forests (USDA Forest Service 2012).

Annually, invasive plant treatments will be subject to the following constraints:

- In no case will more than 2,124 discrete acres be treated using herbicides in a single year (based on our existing, site-specific inventory).
- No more than 10 percent of the total acres of any 6th field watershed will be treated in a single year. No more than 50 acres within 100 feet of any water body in a 6th field watershed will be treated in a single year, and of these, no more than 10 acres will be treated with herbicides.

Invasive Plant Treatment Objectives

Chapter 2.2 of the FEIS describes the four possible treatment objectives for invasive plant management in detail:

- Eradicate
- Control
- Contain
- Suppress

My decision identifies one or two of the four possible treatment objectives for each of the 18 target species of invasive plants (table 1).

Table 1. Current treatment objectives for the 18 mapped, primary invasive plant species

Target Species Category	Common Name	Spatial Extent (November 2012)		Treatment Objective
		Sites	Acres	
Knapweeds	Spotted knapweed	171	82	**Eradicate** small isolated sites in ecologically-sensitive areas **Control** large open sites and linear roadside populations
	Diffuse knapweed	213	74	**Eradicate** small isolated sites in ecologically-sensitive areas **Control** large open sites and linear roadside populations
	Russian knapweed	43	4	**Eradicate**
	Squarrose knapweed	3	<1	**Eradicate** small isolated sites in ecologically sensitive areas **Control** large open sites and linear roadside populations
	Meadow knapweed	2	<1	**Eradicate** small isolated sites in ecologically sensitive areas **Control** large open sites and linear roadside populations
Starthistle	Yellow star-thistle	3	1	**Eradicate**
Thistles	Canada thistle	1,277	1,021	**Control**
	Bull thistle*	0*	0*	**Eradicate** small infestations in ecologically sensitive areas **Control** roadside infestations, large open sites and forested sites
	Scotch Thistle	61	23	**Eradicate** small isolated sites in ecologically sensitive areas **Control** large open sites and linear roadside populations
	Musk thistle	13	11	**Eradicate** small infestations in ecologically sensitive areas **Control** roadside infestations, large open sites and forested sites
Roadside Species	Common St. Johnswort	185	120	**Contain**
	Houndstongue	171	340	**Control**

Target Species Category	Common Name	Spatial Extent (November 2012)		Treatment Objective
		Sites	Acres	
	Sulphur cinquefoil	61	186	**Control**
Toadflaxes	Dalmatian toadflax	666	155	**Suppress**
	Yellow toadflax	27	9	**Suppress**
Mustards	Whitetop	148	85	**Control**
	Perennial pepperweed	12	2	**Control**
Spurge	Leafy spurge	14	10	**Control**
Total		3,070	2,124	
*Bull thistle and Canada thistle were cataloged together in our November 2012 invasive plant inventory. However, the precise species will be identified to determine the specific treatment objective for a given site.				

Invasive Plant Treatment Methods

Control measures include a range of integrated treatment/restoration methods that could be implemented across a range of infested sites. We will identify the specific manual, mechanical, biological, herbicide and cultural/restoration treatments to be implemented at the time of treatment (see common control measures in table 4 below).

To develop the common control measures, project design features, and herbicide-use buffers, we considered the best available scientific information about invasive plant management. Our primary sources of information come from the R6 2005 FEIS, the most current herbicide and adjuvant risk assessments (SERA and Bakke), professional journal articles and other information published since 2005. The “Literature Cited” section of the FEIS documents our commitment to using best available science and high quality data (FEIS, Chapter 4).

We will identify the specific treatment method to be implemented on a site-specific basis at the time of treatment. The following descriptions summarize important information about the treatment methods that are included in the selected alternative.

Manual and Mechanical Treatments

Manual methods include hand pulling or using hand tools (e.g., grubbing), to remove invasive plants or cut off seed heads. Handsaws, axes, shovels, rakes, machetes, grubbing hoes, mattocks, brush hooks, and hand clippers may be used to manually remove invasive plants. Other manual methods could include hot water steaming, or solarization techniques such as using black plastic to cover invasive plants to shade out and kill pieces of roots (i.e., rhizomes).

Manual methods could be used in combination with herbicide methods or alone in areas where herbicide use is restricted, such as near sensitive plant populations or surface waters.

Mechanical methods use power tools and include such actions as mowing, weed whipping, road brushing, and root tilling. These activities will typically occur along roadsides, rock sources, or other confined disturbed areas and dispersed use areas. Mowing and cutting will be used to reduce or remove above-ground biomass. Seed heads and cut fragments of species capable of re-sprouting from stem or root segments will be collected and properly disposed of to prevent them from spreading into non-infested areas.

Herbicide Treatments

Herbicides will be used to contain, control and eradicate invasive plants that are not cost-effectively treated by other methods. When herbicide use is proposed to occur in or near sensitive areas, specific design features will be used to insure that vegetation treatments do not have an adverse impact on non-target plants or animals (see project design features and herbicide use buffers listed in Attachment 1). Herbicide treatments, chemical mixing, spill prevention, and clean-up will be done in accordance with Forest Service policies, plans, and product label requirements.

The herbicide active ingredients listed in table 2 are likely to be most effective on the currently mapped infestations. The analysis assumption is that currently infested areas are 100 percent covered with invasive plants. This assumption will require even herbicide application across each acre. However, it overestimates the amount of broadcast spraying that will actually occur during implementation because many of the infested areas are sparsely covered with invasive plants. Only a portion of each acre will actually be treated with herbicide, regardless of application tool.

Table 2. Summary of herbicide use under alternative B (acres)

First Year/First Choice Activity	Acres
Potential Broadcast Herbicide	
Aminopyralid	1,180
Chlorsulfuron	71
Metsulfuron methyl	30
Total Potential Broadcast Application Method	**1,281**
Potential Spot/Selective Herbicide	
Aminopyralid	168
Chlorsulfuron	519
Metsulfuron methyl	156
Total Potential Spot/Selective	**843**

Spot or hand treatments will be preferred and used wherever they would be effective. Some mapped infestations are so small or so inaccessible that broadcast treatment would not be likely to occur there, even if they were found to be 100 percent covered with invasive plants.

Of the eleven herbicides we considered for use, the first choice herbicides are most likely to be used. The herbicides picloram, sethoxydim, sulfometuron methyl, and triclopyr are the least likely to be used, either because they are effective on fewer target species found on the Forest than other herbicides or because of the restrictions associated with their use.

Aminopyralid will initially be used for treatment of about 1,350 acres (64 percent of the total infested acreage). This herbicide is likely to be the most effective of the 11 available herbicides for 13 of the 18 primary target species (all except houndstongue, toadflax, pepperweed and whitetop, which have chlorsulfuron as the first-choice herbicide; and sulphur cinquefoil, that has metsulfuron methyl as the first-choice herbicide). Other effective herbicides could be used as needed over time, depending on whether the first year's choice proved effective.

Table 8 of the FEIS (Chapter 2.3.2) describes the herbicides authorized for use on the Forest. Most of these herbicides are not proposed for use during the first year of treatment for target species currently mapped on the Forest, but could be used if (1) the first year's choice is found to be ineffective on a target species or site currently mapped on the Forest; or (2) if the existing first

year's choices are not effective on new target species found during the life of the project. Additional information on herbicide toxicity is in Chapter 3 of the FEIS.

For each herbicide, table 8 of the FEIS shows the active ingredient, the SERA risk assessment reference, the typical and maximum label rates, and some remarks about the herbicide. Maximum application rates may be used if necessary in small areas, but in general, spot and broadcast treatments will use typical or lower application rates.

Herbicide Broadcast Spraying

Broadcast application means that herbicide is applied to a continuous population of invasive plants. This method is used when the weed is dense enough that it is difficult to discern individual plants and the area to be treated makes spot spraying impractical. Larger and denser infestations may require a broadcast spray. In cases where the invasive plant covers more than 70 percent of an area that is bigger than 0.1 acre, broadcasting may be the most cost-efficient method.

The most ambitious conceivable situation would be where all currently infested areas become 100 percent covered with invasive plants, which would require the full amount of herbicide to be broadcast on each acre at a typical rate. Using this assumption for this analysis, about 1,281 acres would meet the criteria for broadcast spraying under alternative B.

Many project design features are proposed to avoid drift and other risks sometimes associated with broadcast spraying. Broadcast spraying using most of the 11 herbicides is not allowed near streams (with the exception of aminopyralid which poses little to no risk to the aquatic environment).

Herbicide Spot and Selective Spraying

Selective application targets individual plants. Herbicide is usually applied by hand. Spot spraying targets clumps of plants. Herbicide is usually applied with a backpack sprayer or other hand pump system. Spot spraying is also done using a hose from a truck-mounted or ATV-mounted tank.

The most ambitious conceivable situation would be where all currently infested areas become 100 percent covered with invasive plants. However, the size of these infestations would not require broadcast treatment. Therefore under this scenario about 843 acres would be treated using selective or spot application methods.

Cultural Methods/Restoration

Evaluation for site restoration will occur before, during, and after herbicide, manual, and mechanical treatments. Passive site restoration will be favored in areas having a stable and diverse native plant community and sufficient organics in the soil to sustain natural revegetation. Passive restoration may include keeping cattle away from treated areas until the area has recovered and contains desirable vegetation. If the soils lack sufficient organics, mulch and/or soil microbe inoculum from nearby areas may be added. Deep-rooted shrubs may also be seeded or planted to more fully utilize resources from the lower soil profile, especially late in the growing season. Shrubs allow for easier establishment of understory species by increasing water availability and reducing understory temperatures and soil evaporation loss.

Restoration of native plant communities and erosion protection through mulching, seeding, or planting is likely to occur as a follow up to invasive plant treatment in areas where passive restoration is not sufficient. This will be determined as a part of each treatment prescription. The

1,281 acres that are of a size and configuration to potentially warrant broadcast spraying are assumed to need some sort of restoration. In this project, the following cultural treatments are not included: livestock grazing[2], burning, tilling, plowing, and mechanical seed drilling.

Recovery of native vegetation after invasive plant treatment cannot be precisely predicted. Restoration will be considered following repeated herbicide and other treatment methods, especially in areas where recovery to native vegetation may not be possible, such as campgrounds and other highly disturbed areas. It is likely that due to the nature of repeated disturbance activities in some areas on the Forest, such as roadsides, long-term site objectives may be focused on containment to prevent future spread into other areas of the Forest but not full restoration of these areas to native vegetation.

Meadows and forested areas are most likely to respond favorably to passive restoration, while roadsides and other highly disturbed areas may require active assistance through mulching and competitive seeding or planting with desirable vegetation. The intent is to re-establish competitive local, native vegetation post-treatment to promote resilient habitat conditions that are less susceptible to invasive plants.

The Malheur National Forest LRMP (1990) (as amended by the R6 2005 ROD) Invasive Plant Standard 13 (FEIS, table 1) requires that native species be the first choice for revegetation. No noxious weed or invasive plant species will be used for revegetation. A combination of native and desirable nonnatives could be an initial mix for revegetation. A fast-growing desirable nonnative such as sterile wheatgrass can germinate quickly and start filling in bare ground until a slower to germinate native species can start competing effectively.

Biocontrol Agents

My decision targets 12 invasive plant species for biological control. Biological agents are parasitic insects, mites, nematodes, and pathogens that feed on specific parts of invasive plants and inhibit their growth and spread. In some situations, a suite of biological control agents is needed to reduce weed density to a desirable level. For instance, a mixture of five or more biological control agents may be needed to attack flower or seed heads, foliage, stems, crowns and roots all at the same time or during the plant's life cycle.

Typically 15 to 20 years are needed to suppress or contain an established population of invasive plants. Agents approved by the Animal and Plant Health Inspection Service (APHIS) that are proven natural control agents of specific invasive species but do not harm other species may be released.

Table 3 lists biological control agents that could be redistributed as needed to suppress or contain larger infestations on the Forest. These agents may be used in combination with other treatment methods. They are approved for use in the State of Oregon and will meet R6 2005 ROD (Malheur National Forest LRMP/Ochoco National Forest LRMP) standards.

[2] Grazing will be managed to prevent invasive plant introduction, establishment and spread and may reduce existing populations. These actions will be managed under appropriate grazing management plans. Prescribed burning will also address prevention of the spread of invasive plants and could reduce the size of target populations. However, no grazing or burning is proposed for this project.

Table 3. Biological Control Agents Proposed for Redistribution

Target Species	Agent	Mode of Action
Bull Thistle	*Urophora stylata*	Larvae form a hard multi-chambered gall in the flower receptacle that interferes with seed production.
Canada Thistle	*Ceutorhunchus litura*	Larvae mine pith in stems of flowering plants, increasing susceptibility to pathogens. Adults feed on leaves.
Canada Thistle	*Urophora cardui*	Larvae cause galls on the stems that act as nutrient sinks, stressing plants and reducing seed production and growth.
Dalmation Toadflax	*Mecinus janthinus*	Larvae are stem miners; adults can cause damage to flowers and young leaves.
Dalmation Toadflax	*Gymnetron linariae*	Larvae cause galls in the roots, which may act as nutrient sinks and reduce plant vigor. Adults may cause minor damage by feeding on flowers.
Diffuse Knapweed Spotted Knapweed Meadow Knapweed	*Urophora affinis* *Urophora quadrifasciata*	Larvae overwinter in the seed heads. Developing larvae cause the plant to form a gall around the reproductive parts and create a metabolic sink, drawing nutrients from the plant that extend beyond the attacked seed head.
Leafy Spurge	*Aphthona cyparissiae, Aphthona flava, Apthona nigriscutis, Aphthona czwalinae, Apthona lacertosa*	Adults feed on foliage reducing the plant's production of sugars; larvae feed on root hairs and young roots reducing the plant's ability to take up water and nutrients.
Leafy Spurge	*Oberea erythrocephala*	Larvae bore in the stems and roots of larger plants. Adults girdle the top of the stalk before laying eggs in the stem.
Mediterranean Sage	*Phrydiuchus tau*	Adults feed on the leaves, and larvae feed in the root crown and petioles of large leaves.
Musk Thistle	*Urophora solstitialis*	Larvae cause galls in the seed heads that interfere with seed production and dissemination.
Spotted Knapweed Diffuse Knapweed	*Cyphocleonus achates*	Larvae are root borers and adults feed on the leaves
Spotted Knapweed Diffuse Knapweed	*Terellia virens*	The larvae feed on seeds in the flower head.
Spotted Knapweed Meadow Knapweed Diffuse Knapweed	*Larinus obtusus*	Larvae consume the seeds and adults can defoliate plants when in large numbers.
Spotted Knapweed, Diffuse Knapweed	*Larinus minutus*	Larvae feed in the flower head destroying most of the seeds. Heavy attack by adults can stunt or kill plants and delay flowering.
St. Johnswort	*Chrysolina quadrigemina* *Chrysolina hyperici*	Adults and larvae are foliage feeders.
Yellow Starthistle	*Chaetorellia australis*	Larvae tunnel into the center of the head, where they feed on the ovaries and developing seeds.
Yellow Starthistle	*Eustenopus villosus*	Adults feed on developing buds, causing the buds to die. Larvae feed on the seed head and developing seeds.
Yellow Starthistle	*Larinus curtus*	Adults feed on the flowers and larvae feed on the seed head, reducing seed production.

Target Species	Agent	Mode of Action
Yellow Toadflax	*Gymnetron antirrhini*	Adult weevils emerge in late spring or early summer and feed primarily on young toadflax shoots and buds. Larvae hatch from eggs and feed on seeds.

Integrated Treatment Prescriptions (Common Control Measures) For 18 Primary Target Species

We developed common control measures for each of the 18 primary target species. Table 4 lists the 18 primary target species; common and scientific names, (scientific code), and growth habit; first-choice and other herbicides known to be effective on each species (or group of species); and detailed integrated prescription notes.

We will apply aminopyralid to about 64 percent of the infested acreage for the first treatment entry (approximately 1,350 acres) and chlorsulfuron for the first treatment entry on 28 percent of the acres (approximately 591 acres). We will apply metsulfuron methyl for one target species – sulphur cinquefoil, a species that covers an estimated 8 percent of the acres (approximately 186 acres). We may use other effective herbicides in future re-treatments depending on the effectiveness of the first-choice herbicide.

Table 4. Common control measures

Primary Target Species	First-Choice Followed by Other Effective Herbicides[3]	Integrated Treatment Notes
Yellow star-thistle *Centaurea solstitialis* (CESO3) Annual	**aminopyralid** clopyralid glyphosate picloram	Early detection and treatment increase the chances of control. Treatment of small infestations in otherwise healthy sites should be a priority. Biological control agents are available. Hand pull when soil is moist and remove all roots and flower and seed heads.
Common St. Johnswort *Hypericum perforatum* (HYPE) Perennial with stolons and rhizomes	**aminopyralid** glyphosate metsulfuron methyl picloram	Biological agents are available. Small infestations may be controlled by pulling or digging. Repeated treatments will be necessary because lateral roots can give rise to new plants. Bag and remove all plant parts from site.

[3] Species order does not reflect priority. First choice herbicide is listed in bold followed by other effective herbicides in alphabetical order.

Primary Target Species	First-Choice Followed by Other Effective Herbicides [3]	Integrated Treatment Notes
Russian knapweed *Acroptilon repens* (ACRE3) Long-lived creeping perennial	**aminopyralid** chlorsulfuron clopyralid glyphosate imazapyr metsulfuron methyl picloram	Hand pulling is effective only in the establishment year. Reproduces mainly by vegetative propagation from buds on creeping roots. Biocontrol agents being developed. Cutting or mowing several times per year will control top growth and seed production; re-emerging plants will have less vigor. Lasting control requires an integrated approach; using mechanical or cultural measures with herbicide application, especially in late fall, is most effective. Small, isolated infestations should be eradicated first. Then larger infestations should be controlled from the perimeter and eradicated when possible.
Spotted knapweed *Centaurea stoebe* ssp. *micranthos* (CESTM) Taprooted perennial	**aminopyralid** clopyralid glyphosate triclopyr picloram	Treatment would focus on reducing seed production and preventing germination. Biological agents are available. Repeated manual pulling and digging may eliminate small infestations (2-4 times per year for multiple years). Pull prior to seed set. Bag and remove flower and seed heads.
Diffuse knapweed *Centaurea diffusa* (CEDI3) Short-lived perennial, biennial or annual. Often with a long, stout taproot		
Squarrose knapweed *Centaurea virgata* ssp. *squarrosa* (CEVIS2) Taprooted perennial		
Meadow knapweed *Centaurea jacea* sensu lato (CEJA) Taprooted perennial		

Primary Target Species	First-Choice Followed by Other Effective Herbicides [3]	Integrated Treatment Notes
Canada thistle *Cirsium arvense* (CIAR4) Rhizomatous perennial	**aminopyralid** chlorsulfuron clopyralid picloram	Combining mechanical, cultural, biological, and chemical methods is best for effective control. Biological agents are available, but use may affect native thistles. Mowing, cutting or pulling can be an effective control if repeated at about 1-month intervals throughout the growing season for several years. Combining mowing/cutting with herbicides (in the fall) will further enhance control of Canada thistle. Covering with plastic tarp (solarization) may be effective for small infestations.
Bull thistle* *Cirsium vulgare* (CIVU) Taprooted biennial	**aminopyralid** chlorsulfuron clopyralid glyphosate picloram triclopyr	Prioritize small infestations in otherwise healthy sites. Prioritize prevention of establishment and eliminating plants as soon as they are found. Manually pulling rosettes or cutting stems 2”-4” below the soil surface before flower heads develop kills plants and prevents seed development. Roots may be left on site to dry; all flower and seed heads should be removed. Covering disturbed sites, particularly small burn areas, with fine to medium sized organic matter may prevent or reduce the size of infestations. Please note, this was described as the “Canada thistle strategy” in the DEIS.
Scotch Thistle *Onopordum acanthium* (ONAC) Taprooted biennial or short-lived perennial		
Musk thistle *Carduus nutans* (CANU4) Taprooted biennial or occasional annual		
Leafy spurge *Euphorbia esula* (EUES) Rhizomatous perennial	**aminopyralid** glyphosate imazapic picloram	Early detection and rapid eradication is important since plant spreads rapidly by seeds and rhizomes. Continuous aggressive management is necessary to keep infestations under control (5 – 10 years). Prioritizing treatment of small infestations, then treating large infestations from the outside edges is most effective. Biological control agents may reduce aboveground stems but do not kill root systems. Mechanical, cultural, or herbicide methods alone are rarely effective. Combinations of several herbicide treatments and planting grass seed may provide the best chance of controlling the species. Hand pulling and grubbing are not effective because of the extensive root system. Cutting and mowing reduce seed production and the plant’s competitive ability. Covering with weed cloth, plastic, or thick mulch may kill plants. Site can then be planted with native seed. If manual methods are used all plant parts should be bagged and removed since new plants may form from roots and rhizomes as well as from seeds. Plant’s milky sap may be irritating to skin, eyes, and digestive tract of humans and other animals.

Primary Target Species	First-Choice Followed by Other Effective Herbicides [3]	Integrated Treatment Notes
Houndstongue *Cynoglossum officinale* (CYOF) Taprooted biennial or short-lived perennial	**chlorsulfuron** imazapic metsulfuron methyl	Mowing/cutting second year plants during flowering, but before seed maturation reduces seed production and may kill the plant. Pulling plants or cutting 1-2" below the soil surface have the best chance of eliminating plants. Cutting produces less ground disturbance than pulling. Bag and remove all flower and seed heads.
Dalmatian toadflax *Linaria dalmatica* (LIDA) Perennial with taproot and extensive system of lateral roots Yellow toadflax *Linaria vulgare* (LIVU2) Perennial with taproot and extensive system of vertical and creeping lateral roots	**chlorsulfuron** imazapic metsulfuron methyl picloram	Dalmatian toadflax reproduces primarily by seed and partly by adventitious root buds. Yellow toadflax reproduces primarily by adventitious root buds on lateral roots. Biological agents are available and may be very effective. If biocontrol agents continue to be effective, herbicide application may not be needed. Manual pulling and digging may not be effective because of the deep (4-10 feet) and laterally extensive root systems (to 10 feet from plant). If manually removed, all roots and flower and seed heads should be bagged and removed. Cutting stems in spring or early summer would eliminate seed production, but not the root system.
Whitetop *Cardaria draba* (CADR) Rhizomatous perennial Perennial pepperweed *Lepidium latifolium* (LELA2) Perennial with rhizome like creeping roots	**chlorsulfuron** imazapic imazapyr glyphosate metsulfuron methyl	These species are difficult to control because of their deep taproots (9 ft.) and ability to sprout from root fragments. Early detection and proactive management is most effective since established infestations are difficult to control. Frequent monitoring for new sites and prioritizing small infestations in otherwise healthy sites is important. Next priority would be for corridors, such as waterways and irrigations structures that have a high likelihood of spread. Biological controls are not available. Repeated pulling may control small, young infestations. Established plants are likely to resprout from deep roots. All roots and flower and seed heads should be removed. Mowing does not eliminate plants but removes thatch.
Sulphur cinquefoil *Potentilla recta* (PORE5) Taprooted perennial that may have several shallow, spreading branch roots but not rhizomes	**metsulfuron methyl** glyphosate picloram triclopyr	Cultural treatments, such as seeding of native plants may be effective. There are no approved biocontrols. Small infestations may be controlled by hand digging if the entire root crown is removed. For large infestations, selective herbicides are likely the only method of effective control (TNC 2004). Repeated treatments are needed for the first couple of years to ensure re-establishment does not occur.

Implementation Planning

Treatments will be completed following steps outlined in the Annual Implementation Planning process and Common Control Measures, according to Project Design Features and Herbicide Use Buffers that limit the extent and method of treatment appropriate to site conditions. In addition to these steps, the Early Detection, Rapid Response Decision Process will be followed for sites that may be detected in the future. See Attachment 1 for details.

National Pollution Discharge Elimination System (NPDES) Permit

A Clean Water Act (National Pollution Discharge Elimination System - NPDES) permit will be obtained for herbicide use that may directly enter streams. The permit is needed for herbicide treatments within 3 feet of streams, wetlands, and other seasonally wet areas when water is present, including conveyances with a hydrologic surface connection to a water body (e.g. near a road culvert that runs water to a creek). Treatments on small portions of infestations (currently mapped or detected in the future) may meet the criteria; however, the type of infestations currently found on the Malheur National Forest are not riparian dependent. The current mapping is not refined enough to determine whether a permit will ultimately be needed; however, NPDES Pesticide General Permits would be obtained prior to implementing any treatments in which herbicide could be directly introduced into surface waters. This generally includes treatment within stream banks or for target plants that emerge from or overhang water bodies. Pollution control requirements would be satisfied by the project design features in this project.

Clean Water Act compliance includes use of best management practices (BMPs). Specific BMPs are required for chemical use on National Forests (National BMP Technical Guide - USDA Forest Service 2012). The project design features in Chapter 2 integrate the national BMPs. Core objectives for chemical uses on National Forests are provided in the technical guide. These include:

- Use the planning process to develop measures to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from chemical use on NFS lands.
- Avoid or minimize the risk of soil and surface water or groundwater contamination by complying with all label instructions and restrictions required for legal use.
- Avoid or minimize the risk of chemical delivery to surface water or groundwater when treating areas near water bodies.

Monitoring

Monitoring would occur during implementation to ensure project design features are implemented as planned. Post-treatment reviews would occur to determine whether treatments are effective and whether or not passive/active restoration is occurring as expected. Post-treatment monitoring would also be used to detect whether pdfs were appropriately applied, and whether non-target vegetation impacts were within tolerable levels.

We will ensure that herbicide-use buffers and design features are being properly implemented. If not, we will immediately adjust treatments to ensure proper implementation. In addition, if we find unexpected adverse effects despite proper implementation, we will adjust the herbicide-use buffers and design features until the effects are no longer occurring

Contract administration and other existing mechanisms would be used to correct deficiencies. Prescriptions would be refined over time based on post-treatment results as long as treatments remain within the scope of the EIS. For instance, an invasive plant population treated with a broadcast herbicide may be retreated with a spot spray, or later manually pulled, once the size of the infestation is sufficiently reduced following the initial treatment. Another example would be the use of another herbicide if the first choice is not effective.

Treatment buffers would be expanded if damage was found outside herbicide-use buffers as indicated by a decrease in the size of any non-target plant population, leaf discoloration or chlorophyll change, or mortality to individual species of local interest or non-target vegetation. The findings would be applied to herbicide-use buffers for waterbodies. Herbicide-use buffers may be adjusted for certain herbicides/application methods and not others, depending on results.

Herbicide use will be reported as required by the FSH 2109.14 according to FACTS protocols. We will monitor treatment effectiveness as part of our annual accomplishment reporting. In accordance with national policy, at least 50 percent of all invasive plant treatments are monitored on the ground to determine treatment effectiveness. We will likely revisit most if not all treatment sites to determine need for follow up until the site is fully restored to its desired condition (depending on the capability of the site, the surrounding land uses, the nature of the infestation, and other factors – please see our implementation planning process outlined previously in this chapter).

We will follow the "Invasive Species Monitoring Plan; Southern Blues Restoration Coalition" (appendix B) to address the question: "What are the trends in the occurrence and distribution of invasive plants/noxious weeds at the project and landscape scales?"

Additional monitoring may occur as part of the R6 2005 ROD Monitoring Framework, and to ensure that water quality Best Management Practices are followed and effectively protect water quality.

Land and Resource Management Plan Amendments

My decision includes amendments to the Malheur and Ochoco National Forest Land and Resource Management Plans (LRMPs). These amendments would allow us to us aminopyralid to the integrated treatment toolbox for invasive plants for the Malheur National Forest and the Snow Mountain District of the Ochoco National Forest. Aminopyralid (also known by the trade name, Milestone®) was not available during the analysis process for the R6 2005 FEIS. The risk assessment completed in 2007 indicates that this herbicide will increase treatment effectiveness and decrease risk of adverse effects as compared to other herbicides authorized in the R6 2005 ROD (FEIS, table 7, page 28). Thus, we propose to add aminopyralid to the list of approved ingredients in the LRMPs' invasive plant standard 16. All other standards and guidelines for invasive plant management will remain the same (FEIS, Section 1.7).

U.S. EPA (2005) has concluded that the use of aminopyralid as a replacement for other herbicides will decrease risk to some non-target species:

> "Aminopyralid is a Reduced Risk herbicide that provides reliable control of a broad spectrum of difficult-to control noxious weeds and invasive plants on rangeland and pastures, rights-of-way, and wildlife habitat areas. Aminopyralid is particularly effective for the control of tropical soda apple, musk thistle, Canada thistle, spotted knapweed, diffuse knapweed, yellow starthistle and Russian knapweed. Aminopyralid has a favorable human health toxicity profile when compared to the registered alternatives for

> these use sites and will be applied at a lower rate. Its residual action should alleviate the need for repeat applications, resulting in a reduction in the amount of herbicides applied to the environment for the control of these weeds. Aminopyralid has been determined to be practically non-toxic to non-target animals at the registered application rates, compared to the alternatives, and is less likely to impact both terrestrial and aquatic plants."

Currently, Standard 16 reads as follows:

> *Select from herbicide formulations containing one or more of the following 10 active ingredients: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr…Additional herbicides and herbicide mixtures may be added in the future at either the Forest Plan [LRMP]or project level through appropriate risk analysis and NEPA/ESA procedures.*

I have decided to amend Standard 16 by adding aminopyralid to the list of herbicide formulations. The amended standard will read as follows (changes are underlined):

> *Select from herbicide formulations containing one or more of the following 11 active ingredients: aminopyralid, chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr…Additional herbicides and herbicide mixtures may be added in the future at either the Forest Plan or project level through appropriate risk analysis and NEPA/ESA procedures.*

Page 33 of this ROD further discusses my finding that these Land and Resource Management Plan amendments are not considered to be significant amendments as defined by the 1982 planning rule.[4]

Rationale for Decision

I have selected alternative B because it has the best chance of effectively treating invasive plants using the widest range of treatment methods to meet invasive plant treatment needs. Alternative B favorably responds to issues about effects of herbicides on human health, non-target vegetation and pollinators, soils, water, aquatic organisms, wildlife, and special places. Treatments are relatively cost-effective and adverse environmental consequences will be minimized by project design features (pdfs) and herbicide-use buffers. All practical means to avoid or minimize environmental harm have been incorporated, while still allowing for effective treatments.

Alternative B is consistent with the Malheur National Forest LRMP management direction for invasive plant treatment. Alternative B would lead to a reduction in the extent and density of invasive plant species in the project area.

Alternative B responds to public concerns about treatment effectiveness by authorizing a wide range of integrated treatment methods that will be prioritized, planned, and implemented in cooperation with our neighbors. The FEIS demonstrates that invasive plant treatment under

[4] Under the 2012 Planning Rule (Title 36, Code of Federal Regulations, Part 219–Planning) the responsible official may complete and approve a plan amendment in conformance with the provisions of the prior planning regulation, including the transition provisions of the reinstated 2000 rule (36 CFR part 299, published at 36 CFR parts 200 to 299, revised as of July 1, 2010). The transition provisions allow the use of the 1982 planning procedures (See CFR parts 200 to 299, Revised as of July 1, 2000). See the following hyperlink for the 1982 planning procedures http://www.fs.fed.us/emc/nfma/includes/nfmareg.html

alternative B would benefit the environment and would not involve unnecessary or unreasonable risks. I considered the benefits of integrated invasive plant treatment and find that the benefits of treatment far outweigh the risks.

In making this decision, I considered the policies and invasive plant management direction associated with invasive plants, the public scoping and DEIS comments, and the analysis in the EIS.

Policies and Management Direction

Forest Service policies and management direction related to invasive plant treatment clearly supports taking action to contain or reduce density of invasive plants on National Forests. Prevention, early detection and rapid response, invasive plant control measures, restoration and organizational collaboration are all addressed in the Forest Service 2900 Manual. Forest Service Manual (FSM 2150) and Forest Service Handbook (FSH 2109) provide direction on safe use of pesticides, including direction on storage and transport, and development of safety plans and emergency spill plans.

The R6 2005 ROD also provides management direction for this project. The R6 2005 ROD lays out several objectives for invasive plant management including:

> Objective 1.3: Detect new infestations of invasive plants promptly by creating and maintaining complete, up-to-date inventories of infested areas, and proactively identifying and inspecting susceptible areas not infested with invasive plants.
>
> Objective 1.4: Use an integrated approach to treating areas infested with invasive plants. Utilize a combination of available tools including manual, cultural, mechanical, herbicides, biological control.
>
> Objective 1.5: Control new invasive plant infestations promptly, suppress or contain expansion of infestations where control is not practical, conduct follow up inspection of treated sites to prevent reestablishment.
>
> Objective 3.1: Avoid or minimize public exposure to herbicides, fertilizer, and smoke.
>
> Objective 3.2: Reduce reliance on herbicide use over time in Region Six
>
> Objective 4.1: Maintain water quality while implementing invasive plant treatments.
>
> Objective 4.2: Protect non-target plants and animals from negative effects of both invasive plants and applied herbicides. Where herbicide treatment of invasive plants is necessary within the riparian zone, select treatment methods and chemicals so that herbicide application is consistent with riparian management direction.
>
> Objective 4.3 - Protect threatened, endangered, and sensitive species habitat threatened by invasive plants. Design treatment projects to protect threatened, endangered, and sensitive species and maintain species viability.

I find that the design of alternative B will help us meet these objectives. The objective of reducing herbicide use over time is best met by implementing effective, integrated treatments that may include chemical use, as has been proposed in alternative B. As discussed in FEIS Chapter 3.1.4: "*The design of each alternative influences the cost of eradicating, controlling, and containing*

invasive plants on the Malheur National Forest. The effectiveness of each treatment is influenced by the tools available for use; the more tools available, the greater the potential effectiveness of the treatment. If the toolbox is restricted and some situations cannot be effectively treated, the percentage of target population killed each year can be dramatically decreased. On page 4-18, the R6 2005 FEIS notes that "In general, alternatives that have the widest variety of herbicides and herbicide families available for use have the greatest potential to result in effective treatments." In contrast, when herbicide use is more restricted, "…fewer acres would likely be achieved at a constant budget, and the years to control increases proportionally" (ibid. page 4-21). Thus, a loss of effectiveness is likely if the most effective choice is not available for a given site."

Alternative B is by definition the most cost-effective alternative because it allows for the widest range of treatment tools.

Public Scoping and DEIS Comments

The project scoping input and comments to the DEIS illustrate the concerns people have regarding invasive plant management. Many of the public issues discussed in the R6 2005 FEIS were repeated at this project level, including concerns about the spread of invasive plants from land uses on the Forest, concerns about the effectiveness of treatment strategies, and concerns about the impacts of treatments, especially related to herbicide use.

I believe that concerns about the spread of invasive plants from land uses are addressed through adherence to the R6 2005 ROD and other management direction ensuring that prevention measures are integrated into all projects and activities on the Forest. Some commenters remarked that changes in land uses and other measures should be applied to forest activities to prevent or slow the spread of invasive plants. Prevention applied to land uses is not a connected action to this project. The R6 2005 FEIS discussed the programmatic relationship between prevention, the spread of weeds, and the eventual need for treatment (Chapter 4.1.3). Causes and vectors of invasive plant spread are specifically addressed in the R6 2005 FEIS (Chapter 3 and appendices). This treatment project EIS is tiered to the R6 2005 FEIS and relies on these discussions where necessary to address the relationship between land uses and invasive plant spread. Treatment will continue to be needed; even with prevention measures applied to land uses (R6 2005 FEIS 4.1.3).

I am making this decision in recognition that the current treatment approach (relying mainly on manual control) has not effectively reduced the extent or density of invasive plants. Experts in the field of invasive plant management have expressed that this project is necessary to meet invasive plant control objectives. For instance, the Directors and Staff of the Grant Soil and Water Conservation District noted that "Implementation of the proposed control measures will provide direct protection to desired native plant communities, reduce noxious weed seed sources that can migrate to neighboring lands, and contribute positively to sustaining essential watershed functions of the Forest."

The public comments also reflected public concern about the extent and impact of herbicide use proposed. Several alternatives were suggested to limit the type and amount of herbicide that may be used, the locations they may be used, and the application method. Explanations of how these alternatives were considered, and the reasons why they were not analyzed in detail, are included in the FEIS (Chapter 2.4).

Comments suggested that effectiveness of past treatments must be evaluated by a disinterested party before new treatments would be implemented. This is an opinion not supported by law or

policy and would not address the need for treatment flexibility or rapid response to newly detected infestations.

Comments suggested that maximum rates of any herbicide should not be used in any circumstances. A general limit on application rates was not considered for detailed study because it would not further minimize adverse effects, but could impede treatment effectiveness.

Comments suggested an alternative requiring a mandatory decline in herbicide use over time. Due to uncertainty in funding and workforce capacity, the pattern of herbicide use over time cannot be precisely predicted. Thus, a mandatory decline on herbicide use each year at the project level is not possible and would not meet the purpose and need for timely and effective treatments.

Comments suggested that herbicides only be used as a last resort or not used at all. Use of herbicides as a last resort was considered as an alternative in the R6 2005 FEIS and was rejected in the R6 2005 ROD (p. 27). Herbicide use in the context of integrated invasive plant management is supported by current policy and management direction on the Forest.

Comments suggested that herbicide use be limited to a subset of target species considered the highest priority. However, treatment priority is based on site conditions as well as target species, and the use of herbicides would already be minimized by the project design features. Limiting herbicide use to high priority target species would not allow effective treatments in high priority areas threatened by invasive plants, such as wilderness trailheads and riparian zones.

Comments included a number of suggestions about prohibiting herbicide use in a variety of areas, including riparian zones and other sensitive sites. When all of the areas are added together, this becomes an alternative very similar to eliminating herbicides from the treatment toolbox and would not meet the purpose and need for timely and effective treatment. I find that the project design features already limit the potential for impacts to fish and wildlife habitats and native plant communities with the Forest.

Comments suggested that some of the proposed herbicides not be approved due to perceptions about their toxicity or risk of adverse impacts associated with their use. I considered dropping some of the herbicide ingredients from consideration to respond to these concerns. I have decided to retain the option of using any of the 11 proposed herbicides on this project to help increase the potential for success as the project is implemented over time. Having herbicide options is important should the first choice herbicides be found ineffective. The project has been designed to minimize the risks of any and all chemical use by restrictions on application method, rate, timing, and extent of use. Herbicides that pose relatively higher risks would be used less extensively and less frequently. I have dropped the use of certain herbicide additives (NPE, POEA) to reduce potential risks. These additives are not necessary for effective treatment.

FEIS Appendix D provides detailed responses to comments made to the DEIS. The following section discusses the impacts of the project to further explain why I believe that alternative B will adequately minimize risk to people or the environment.

EIS Analysis

I acknowledge that herbicide applicators and other people may be exposed to the herbicides used to treat invasive plants under alternative B (FEIS Chapter 3.2.3). However, the analysis indicates adverse effects to human health are unlikely. Human health risks have been minimized by the

design of the project, so scenarios that are associated with hazard quotients greater than 1 for human health are implausible or unlikely to actually occur.

I recognize that some individual non-target plants may be killed or harmed during implementation of this project. However, sensitive plants would be protected by project design features (FEIS Chapter 3.3.3) and on the balance, reduction of invasive plant species would help restore native plant habitat and communities within disturbed areas. Treatments would have a beneficial impact on sensitive non-target plant species directly correlated with how many acres of invasive species are reduced or eliminated by effective treatments (FEIS Chapter 3.2.3).

Invasive plant treatments will not adversely affect soil biology or productivity. Restrictions on the rate, type, and frequency of specific herbicides (see pdf groups F and H, see Attachment 1) would reduce herbicide build up in the soil and impacts on soil organisms or productivity (FEIS Chapter 3.4.3). Site specific modeling indicated that herbicides would not likely leach further than 36 inches down into the soil (ibid). Proposed treatments would not create large bare areas or result in heavy disturbance to the soil surface (ibid).

Invasive plant treatments would not adversely affect water resources. To limit risk of off-site movement of herbicides, pdfs H5 and H6 (see Attachment 1 in this ROD) limit herbicide spraying in conditions of high water table or saturated soils, and H11 provides parameters on allowable weather conditions for spraying. I recognize that treatment on roads poses a risk to eventual surface water contamination because surface runoff from bare and or compacted surfaces within the road prism shed precipitation water more readily and frequently than natural slopes. To address this risk, pdfs and herbicide-use buffers apply to roadside ditches that drain into streams.

The project design features, herbicide use buffers, and treatment caps are likely to prevent herbicide from reaching streams in measurable or harmful concentrations. Any herbicide reaching the stream would be quickly diluted as it moved downstream. Mixing and dilution of any trace amount of herbicide that may result from invasive plant treatment would occur quickly (FEIS Chapter 3.5.3).

Serious adverse effects on aquatic organisms, in the short or long term from this project are unlikely (FEIS Chapter 3.6.3). Concentrations of herbicides potentially delivered to any water body on the Forest would remain well below levels capable of measurably affecting aquatic organisms. I acknowledge that while sediment contribution from invasive plant treatments would be relatively minor, treatments in riparian areas could result in minor local changes to fish habitat (ibid).

Invasive plant treatments proposed under alternative B would not alter habitat structure or composition for terrestrial wildlife species (FEIS Chapter 3.7.3). Most of the invasive plants on the Malheur National Forests are forbs, thus woody species, and shrubs and trees would not likely be affected by treatments. Impacts to non-target forbs and grasses would generally be minor and occur within treated areas or within short distances of treated areas (less than 100 feet, 15 feet for spot treatment). In some cases, removal of invasive plants could cause a localized decrease in the amount of vegetative cover provided. However, due to the patchy nature of invasive plant infestations, there would be little cover lost. Invasive plant treatments are not likely to reduce available habitat or prey availability (ibid).

Effective invasive plant treatments on grazing allotments would help retain and increase the native vegetation that provides livestock forage. Livestock exposure to toxic weed species would be reduced (FEIS Chapter 3.8.3). First-choice herbicides proposed for alternative B are expected

to have no adverse effects to livestock. Herbicide impacts would be eliminated due the pdfs that keep rates low and the coordination with permittees that ensures pdfs and label requirements for moving livestock during spraying are followed (see N group in pdfs in attachment 1).

I understand that the use of herbicides in wilderness areas may reduce the wilderness experience for some users in the short term, but active treatment provides the best protection of wilderness character and values (FEIS Chapter 3.9.3). Invasive plants have an adverse effect by disrupting natural processes. Invasive species may alter native plant communities and have indirect effects with wildlife species that rely on the native plant communities. Invasive species may also alter fire regimes that may ultimately alter wilderness ecological processes.

Similarly, the use of herbicides in Wild and Scenic Rivers may reduce the 'wild' experience for some users in the short term especially in the Wild designated corridor, but active treatment provides the best protection of the outstanding and remarkable values. Treating Wild and Scenic River infestations would have short term adverse effects by introducing human manipulation, but would result in long term beneficial effects to wilderness character and values by restoring natural conditions (ibid.)

This project would result in recovery or protection of the scenic and natural appearing forest character (FEIS Chapter 3.9.3). I recognize that the visual impact of the short lived blue dye may result in visual impacts to the recreation experience of some visitors. However, these effects would be short term and limited to the vicinity of the treated site. Recreation sites undergoing treatment would be marked and forest visitors would be discouraged from recreating in the vicinity of sites recently treated and may choose to relocate to alternative recreation sites (ibid). I believe this inconvenience is outweighed by the ability to effectively treat recreation sites that are likely sources of invasive plant spread.

Invasive plant treatments are unlikely to adversely affect heritage sites. Most of the treatment methods are not ground disturbing and therefore would have no direct or indirect effect on archaeological (cultural) resources. Weed wrenching and grubbing may disturb archaeological resources; however, the effects would be relatively minor (FEIS Chapter 3.10.3).

Alternative B is my selected alternative given the low likelihood of serious adverse effects. Alternative B has the greatest potential for positive benefits from treatment.

Other Alternatives Considered

In addition to the selected alternative, we analyzed three other alternatives: no action (alternative A) and two action alternatives (alternatives C and D). Table 5 summarizes the activities included in each alternative analyzed in detail compared to the selected alternative.

Table 5. Alternative comparison by activity

Activity	Alternative B (Selected Alternative)	Alternative A (No Action)	Alternative C (Strict Limitations on Herbicide Use)	Alternative D (No LRMP Amendment, No Aminopyralid)
Authorizes EDRR	Yes	No	Yes	Yes

Activity	Alternative B (Selected Alternative)	Alternative A (No Action)	Alternative C (Strict Limitations on Herbicide Use)	Alternative D (No LRMP Amendment, No Aminopyralid)
Non-herbicide treatments	Non-herbicide treatments will be integrated with herbicide treatments	None[5]	Same as Alternative B, except only non-herbicide treatments would be approved within 100 feet of water bodies	Same as Alternative B
Maximum acres of proposed herbicide treatments during any year of implementation	2,124	0	735	Same as Alternative B
Number of herbicides available for use	11	0	10 (no picloram)	10 (no aminopyralid)
Forest LRMP amendment to include aminopyralid	Yes	No	Yes	No
Herbicide application rate and method	Lowest effective rate, broadcast sprayers may be used where needed according to project design features	None	Application rate would not exceed 70% of typical broadcast rate, no boom or broadcast sprayers	Same as Alternative B , no aminopyralid
Biological control agents	Biological control agents may be released or redistributed	No biological agents would be released within the Forest boundaries	Same as Alternative B	Same as Alternative B
Prevention measures	Same as Alternative B	Measures applied to all land uses to prevent the introduction and spread of invasive plants.	Same as Alternative B	Same as Alternative B
Restoration	Active and passive restoration with native plants would be encouraged	Same as Alternative B	Same as Alternative B	Same as Alternative B

Table 6 displays a comparison of the first year/first choice herbicide for each alternative. All action alternatives (B-D) will approve a range of treatments on all 2,124 currently infested acres. Alternative C is the only action alternative that would disallow herbicide use in specific areas to

[5] The analysis in Chapter 3 assumes that no action means no invasive plant treatments will occur. However, actions to prevent invasive plant spread would continue, and biological agents may occupy areas where their host species occur within the Malheur National Forest.

the degree that non-herbicide treatments would be the only methods allowed for these sites. Under alternative A (no action), no treatments would be approved. Under all alternatives (A-D), approved biological controls will continue to be released and help suppress toadflax, St. Johnswort and other common invasive species.

Table 6. Comparison of first year/first choice herbicide by alternative

First Year/First Choice Treatment	Alternative A Acres	Selected Alternative Acres	Alternative C Acres	Alternative D Acres
Broadcast Herbicide Application (total)	0	1,281	0	1,281
Aminopyralid	0	1,179	0	0
Chlorsulfuron	0	71	0	435
Glyphosate	0	0	0	3
Metsulfuron methyl	0	30	0	69
Picloram	0	0	0	36
Spot/Selective Herbicide Application (total)	0	843	735	1,581
Aminopyralid	0	168	560	0
Chlorsulfuron	0	519	142	595
Glyphosate	0	0	0	722
Metsulfuron methyl	0	156	33	238
Picloram	0	0	0	27
Non-herbicide Only	0	0	1,389	0

Alternative A – No Action

Alternative A is described in detail in section 2.3.1 of the FEIS. Under alternative A, the Forest Service would not treat invasive plants on the Malheur National Forest using integrated treatment methods. Invasive plant treatments would likely continue on state road rights-of-way and easements within the Forest because they are not subject to Forest Service control. Any future treatments would require separate environmental analyses. For example, categorical exclusions may be completed to authorize manual and limited mechanical treatments in site-specific areas.

Why Alternative A was not Selected

Alternative A would have addressed some public concerns by eliminating most herbicide use on the Forest. There would be low or no risks or impacts from herbicides on human health, non-target vegetation and pollinators, soils, water, aquatic organisms, or wildlife if no action were taken. However, the threats to the environment from invasive plants would have continued unabated and policies related to invasive plant management would not be followed. Treatment along roads and near recreation areas is particularly important because these areas are most prone to perpetual disturbance that favors opportunistic invasive species and a high rate of propagule pressure (i.e. spread).

Since invasive plants often out-compete native plants, the risk to sensitive plants from invasive plants increases with the number of acres of invasive plant infestation. Up to 30,000 acres could be infested over a 15-year period if no treatment occurs and invasive plants spread at a rate of 10 percent per year. Alternative A will not achieve the goal of reducing acreage or suppressing, containing, controlling or eradicating invasive plants. This alternative would not meet the desired

future condition “to retain healthy native plant communities that are diverse and resilient, and restore ecosystems that are being damaged, and to provide high quality habitat for native organisms throughout the forest, and assure that invasive plants do not jeopardize the ability of the forest to provide goods and services communities expect.” Without action, invasive plants would continue to spread and could adversely impact sensitive species (FEIS Chapter 3.2.3). Over time, invasive plants could out-compete desirable vegetation that helps maintain functional riparian areas and stream conditions (FEIS Chapter 3.3.5). Aquatic habitats are harmed when invasive species out-compete native vegetation. Native vegetation supports the biotic (e.g., invertebrate community) and abiotic (soil stabilization) attributes necessary for high quality aquatic habitat. Continued expansion of invasive plants, as is likely occur with no action, would continue to change near-stream biotic and abiotic attributes, and could result in degradation of aquatic and riparian habitats (FEIS Chapter 3.3.6). Under alternative A, the long-term loss of native vegetation and habitat due to continued encroachment of invasive plants would adversely affect species such as elk, antelope, grasshopper sparrow, greater sage grouse, upland sandpiper, bobolink, Columbia spotted frog, silver-bordered fritillary and several migratory birds of concern (FEIS Chapter 3.3.7). For these reasons, I have decided not to select alternative A.

Alternative C – Strict Limitations on Herbicide Use

Alternative C is described in detail in section 2.3.3 of the FEIS. We developed alternative C in response to public concerns about herbicide use on the Malheur National Forest. Alternative C would have imposed strict limitations on our ability to use herbicides to treat invasive plants. Compared to alternative B, alternative C would have addressed public concerns about herbicide impacts to human health, non-target vegetation, pollinators, potential water contamination, and herbicide effects on fish and wildlife while still allowing for some herbicide use. Approximately 735 acres would have been approved for spot/selective herbicide use under this alternative. No herbicide would have been used on the remaining 1,389 acres to be treated.

Aminopyralid would have been one herbicide available for use, so this alternative would have included the same LRMP amendment as alternative B. Alternative C would have included all of the integrated treatment methods listed for alternative B, except broadcast treatment would not have been authorized and no picloram would have been used. Biological controls would have been released as described under alternative B.

Under alternative C, all of the alternative components and project design features for alternative B would have been followed, except that project design features related to broadcast spraying, use of picloram, and herbicide use within 100 feet of streams or other water bodies would have become non-applicable.

No herbicide use would have been allowed within the boundaries of any mapped infested area that at any point is within 100 feet of creeks, lakes, ponds and wetlands; or 200 feet of well source areas. Non-herbicide methods would have continued to be used within these areas. The buffer tables associated with alternative B would have become non-applicable since no herbicide use would have been allowed within 100 feet of streams. No herbicide use would have been authorized within 100 feet of hydrologically connected roadside ditches when surface water is present.

Restoration would have been the same as described for alternative B.

Alternative C would have provided for treatment flexibility through the life of the project. Newly detected infestations could have been treated according to the project design features associated

with this alternative. No broadcast treatments, use of herbicides within 100 feet of streams, or use of picloram would have been authorized for future year treatments. Selective and spot treatment of herbicide would have been limited to no more than 735 acres per year, or total 11,025 acres over the life of the project. No more than 50 acres of non-herbicide treatment (except biological controls) would have occurred annually within 100 feet of a stream or water body with any given sixth-field watershed. The total of non-herbicide and herbicide methods would not have exceeded 30,000 acres over a 15-year period.

These restrictions would have applied to known sites as they change over time, as well as new detections. The implementation planning process would have been similar to alternative B. However, the range of treatments that would have been allowed and the places, types and amounts of herbicide that might have been used would have been more restrictive. FEIS table 15 summarizes the herbicide ingredients that would likely have been most effective in alternative C, based on the target species within the mapped infested areas and the restrictions on herbicide use in this alternative.

Why Alternative C was not Selected

Several public comments indicated support for aspects of alternative C, including eliminating the broadcast application method, eliminating the use of the herbicide picloram, and eliminating all herbicide use within 100 feet of riparian areas. Many of the comments indicated this alternative was not restrictive enough and indicated a desire for more restrictions on herbicide use.

I did not select alternative C because it would have been less effective in reducing the density and extent of invasive plants. The analysis does not indicate that the restrictions associated with alternative C are necessary to minimize the adverse effects of treatments.

Alternative C would have been more costly to implement, estimated at $722 per acre compared to $544 per acre in alternative B and would be less likely to meet control objectives in riparian areas (FEIS Chapter 3.1.4).

I acknowledge that use of spot or selective treatments (no broadcast) could have reduced the potential for vegetation or fruit to become contaminated with herbicide, compared to the selected alternative. Also, not using herbicide near streams would have reduced risk of consuming contaminated drinking water or eating contaminated fish. However, the risks associated with alternative B are already relatively low and unlikely or implausible to actually occur (FEIS Chapter 3.2.3). Thus, the loss of cost-effectiveness associated with alternative C is not warranted by the additional protections.

Although the risk to sensitive plants is relatively lower under alternative C, the same potential sources of risk would have still applied. However, alternative C will not lead to as great of a beneficial impact as alternative B relative to native plant communities and sensitive plants.

I acknowledge that the additional stream buffers associated with herbicide use in alternative C would have reduced the potential for herbicide to be delivered to surface waters on the Forest (FEIS Chapter 3.5.3). However, the risks associated with alternative B do not warrant the additional herbicide use buffers, which also would have potentially increased sediment delivery to streams from manual or mechanical treatments. Picloram would not be used at all so there would have been no potential for this herbicide to reach streams or other water bodies. There also would have been less short- and long-term benefit to the aquatic environment from effective treatment of invasive plants in riparian areas.

There does not appear to be a benefit to alternative C regarding effects on wildlife. The likelihood of direct effects on wildlife would have been increased because manual/mechanical treatments can increase the likelihood of disturbance to less mobile wildlife species (FEIS Chapter 3.7.3).

I did not select alternative C because of it would reduce cost-effectiveness compared to the selected alternative and the additional restrictions are not warranted given the layers of protection included in the selected alternative.

Alternative D – No LRMP Amendment, No Aminopyralid

Alternative D is described in detail in Chapter 2.3.4 of the FEIS. Alternative D was developed to evaluate the tradeoffs involved with adding aminopyralid to the list of available herbicides for use on the Malheur National Forest. Under this alternative, no aminopyralid would have been used, and no LRMP amendment would have been required.

All treatment methods listed for alternative B would have been approved. Biological controls would have been released as described under alternative B.

Integrated treatment prescriptions would have been similar to those listed for alternative B except that no aminopyralid would have been used to treat known sites or new detections. Compared to alternative B, more chlorsulfuron, glyphosate, metsulfuron methyl, and picloram would have been used in lieu of aminopyralid. In some cases, the first choice herbicide would not have been approved for use near streams (e.g., picloram) and another herbicide (e.g., glyphosate) would have become the first choice.

All of the project design features and herbicide-use buffers associated with alternative B would have applied, except for those that refer to use of aminopyralid.

The herbicide-use rates, project design features and herbicide-use buffers associated with aminopyralid would have become non-applicable. Much of the infested sites near streams and other water bodies would have been spot treated rather than broadcast as directed by the herbicide-use buffers associated with herbicides other than aminopyralid.

Of the ten herbicides considered for use under this alternative, the first choice herbicides would have been most likely to be used. The herbicides sethoxydim, sulfometuron methyl, and triclopyr would have been the least likely to be used.

Passive and active restoration methods under alternative D would have been the same as alternative B. Treatment flexibility, early detection and rapid response, implementation planning, and monitoring would have been the same as under alternative B.

Why Alternative D was not Selected

I did not select alternative D because it would have been less effective, more costly, and would not have better addressed any public issue.

Public Involvement

As described in the background, the need for this action arose in 2002 after a U.S. District Court required us to consider, evaluate, and disclose the individual and cumulative impacts of herbicide use in an environmental impact statement or supplemental environmental impact statement.

On March 31, 2006, we published a Notice of Intent (NOI) to prepare an environmental impact statement (EIS) for this invasive plant treatment project (Federal Register Vol. 72, No. 62, pp. 16281 -1628). We considered public scoping input and initiated an analysis. However, there was a delay in completing the NEPA process, so the proposed action was updated and a new NOI was published in the Federal Register on April 5, 2011, (Federal Register Vol. 76, No.65, pp. 18713-18715) initiating new scoping input. In addition this project has been listed on the Malheur National Forest Schedule of Proposed Actions (SOPA) initially in Spring 2006 and replaced in Spring 2011.

The Notice of Availability for the Draft EIS (DEIS) was published in the Federal Register (Federal Register Vol. 78, No. 217, pp. 67140 -67141).). We documented and responded to public comments to the DEIS, and recorded these in Appendix D of the FEIS.

We published a "Legal Notice of the Opportunity to Object" for this project in the *Blue Mountain Eagle*, the newspaper of record (78 FR 241, p. 76101, 12/16/2013) on ___ __, 2015. This provided notice to interested individuals, agencies, and organizations that the FEIS and draft record of decision were available and subject to pre-decisional administrative review and objection under Subparts A and B of 36 CFR Part 218.

Issues

Scoping input from both 2006 and 2011 was used to develop issues and alternatives analyzed for the draft environmental impact statement. The following significant issues influenced the analysis of alternatives in the EIS (FEIS, Section 1.10):

- **Treatment cost-effectiveness:** Restrictions on herbicide use reduce treatment effectiveness and increase treatment costs.
- **Herbicide impacts to human health:** Human health may be harmed by herbicide exposure.
- **Herbicide impacts on non-target vegetation and pollinators:** Proposed herbicide use may harm non-target plants and/or pollinators, specifically sensitive and other special status species, cultural use plants, and special forest products.
- **Herbicide delivery to water and impacts on fish:** Proposed herbicide use may result in chemicals reaching streams and other water bodies (through drift, leaching and/or run off) and adversely affect fish and their habitat.
- **Herbicide impacts on wildlife:** Proposed herbicide use may result in harmful exposure to terrestrial wildlife (specifically species of conservation concern).

To address these concerns, the Forest Service created the alternatives described above. Table 7 summarizes how each alternative considered in detail addressed the issues.

Table 7. Alternative comparison relative to significant issues

Issue Component	Unit of Measurement	Alt A (No Action)	Alt B (Proposed Action)	Alt C (More Restrictive Herbicide Use)	Alt D (No LRMP Amendment)
1 – Treatment Effectiveness					
Restrictions on herbicide use reduce treatment effectiveness and increase treatment costs.	Average Cost per Acre of Effective Treatment of Known sites (includes re-treatments and restoration)	0	$544	$722	$598
	Total Cost of Effective Treatment of Know Sites (includes re-treatments and restoration)	0	$1,154,000	$1,472,900	$1,270,500
	Ability to meet treatment objectives	Will not meet objectives	Tools adequate to meet treatment objectives	Tools may not be adequate to meet treatment objectives, especially near riparian areas	Tools adequate to meet treatment objectives, however opportunities to use most effective herbicide or application method may be forgone
2 – Herbicide Impacts to Human Health					
Human health may be harmed by herbicide exposure.	Type (rate, method, chemical properties) and extent of herbicide use that could result in harmful exposure scenarios to people.	None	None of the herbicides proposed for use are associated with harmful scenarios to the public. Pdfs minimize or eliminate potential for harmful exposure by limiting the herbicide ingredient, rate, or method of application. Workers need to take specific precautions to avoid herbicide exposure.	Same as Alternative B, except that far less herbicide would likely be sprayed annually. The minimal risks associated with herbicide use under Alternative B would be further reduced.	Same as Alternative B. Where necessary, pdfs minimize or eliminate potential for harmful exposure scenarios.
	Qualitative assessment about the effectiveness of herbicide-use buffers and	None	Risk assessments demonstrate that the type of herbicide use proposed	Alternative C would have less risk of herbicide exposure	Same as Alternative B, except opportunities to use aminopyralid would

Issue Component	Unit of Measurement	Alt A (No Action)	Alt B (Proposed Action)	Alt C (More Restrictive Herbicide Use)	Alt D (No LRMP Amendment)
	other project design features to prevent harmful herbicide exposure scenarios		poses relatively low risk to human health. The likelihood of harmful exposures is low, thus the design features have high likelihood of eliminating all potential adverse impacts from herbicide use.	overall, especially to fish and water, due to restrictions on herbicide use near water. The buffers would eliminate all potential herbicide exposure near streams. While this alternative includes some additional design features that would comparatively reduce risk of harmful herbicide exposure, the risk is already low.	be foregone and in some cases, higher risk herbicides would be used. However, more spot treatment and less broadcasting would occur, which could result in less herbicide exposure, partly because less herbicide can be applied per day so the daily treatment extent would likely be less. For the project as a whole, the design features minimize adverse impacts to human health from herbicide use.
	Potential for Herbicides to Affect Drinking Water	None	Drinking water quality would not be adversely affected. Restrictions on herbicide use near drinking water and well intakes further minimize risk. Herbicide transportation and handling safety plan would minimize potential for an herbicide spill.	Same as Alternative B	Same as Alternative B
3 – Herbicide Impacts on Non-target Vegetation					
Proposed herbicide use may harm non-target plants, specifically sensitive and other species of conservation concern, cultural use	Type and extent of herbicide use within 100 feet of botanical special species of conservation concern, cultural use plants, and special forest	None	Pdfs prohibit broadcast herbicide use within 100 feet of sensitive plant populations. Spot applications will be used within 100 feet of sensitive plant populations. The pdf	Same as Alternative B, less overall herbicide use	Same as Alternative B

Issue Component	Unit of Measurement	Alt A (No Action)	Alt B (Proposed Action)	Alt C (More Restrictive Herbicide Use)	Alt D (No LRMP Amendment)
plants, and special forest products.	products.		for use of blue dye will alert special forest product gatherers of herbicide spray areas.		
4 - Herbicide Delivery to Water and Potential Impacts to Fish					
Proposed herbicide use may result in chemicals reaching streams and other water bodies (through drift, leaching and/or run off) and may adversely fish and their habitat.	Type and extent of herbicide use within 100 feet of streams and other water bodies.	None	Aminopyralid could be broadcast up to water's edge; however, no adverse impacts on fish are expected because the amount of herbicide that may reach streams is below a level that could harm fish. Herbicide-use buffers and other pdfs reduce the rate, extent, or frequency of herbicide use that pose potential risks to fish.	Same as Alternative B, except no herbicides would be used within 100 feet of streams and other water bodies. There potentially could be more sediment from non-herbicide methods required near streams.	Same as Alternative B, except comparatively more use of higher-risk herbicides relative to fish. pdfs minimize risks and differences between alternatives.
	Qualitative assessment about whether or not, and how fisheries might be affected	No impacts	Water concentrations from site-specific model runs at highest risk sites demonstrate that levels of herbicide that could reach streams and aquatic organisms are at least 3 orders of magnitude less than levels of concern for fish and habitat. Treatment methods may result in minor amounts of sediment reaching streams.	Same as Alternative B	Same as Alternative B
5- Herbicide Impacts on Wildlife and Pollinators					
Proposed herbicide	Type and extent of herbicide use within	None	This alternative has the most broadcasting, but the	Spot application of herbicides would occur	First-choice herbicides that pose a low risk to

Issue Component	Unit of Measurement	Alt A (No Action)	Alt B (Proposed Action)	Alt C (More Restrictive Herbicide Use)	Alt D (No LRMP Amendment)
use may result in harmful exposure to terrestrial wildlife (specifically species of conservation concern).	specific wildlife habitats for wildlife of conservation concern		first-choice herbicides that would be used pose low risk to wildlife.	on 735 acres and the first-choice herbicides pose low risk to wildlife.	wildlife would be applied on 1,337 acres whereas moderate to risk first-choice herbicides would be used on 787 acres. Less broadcasting than Alternative B, which reduces risk of drift.
	Risk of HCB (hexachlorobenzene) contamination and effects on raptor eggs	None	No HCBs in first-choice herbicides. Pdfs minimize risk to raptors to extremely low level.	Same as alternative B. No use of picloram reduces risk.	Picloram is the first-choice herbicide on 63 acres, posing low risk of HCB's; pdfs minimize risk to raptors to extremely low level.
	Narrative assessment about whether or not, and how species of conservation concern and amphibians might be affected	None	All first-choice herbicides pose a low risk to wildlife. Pdfs that restrict timing and application of herbicides in sensitive habitats will minimize or eliminate the likelihood for any species to receive a harmful exposure to herbicides or disturbance.	Same as Alternative B, except greater risk of disturbance from non-herbicide treatments.	Same as Alternative B, except less broadcasting and more use of herbicides that pose a comparatively greater risk to wildlife.

Findings Required by Other Laws and Regulations

This decision to implement the Malheur National Forest Site-Specific Invasive Plants Treatment Project is consistent with the intent of the LRMP's long term goals and objectives listed on pages IV-1 thru IV-23 (Malheur) and pages 4-1 thru 4-44 (Ochoco). This project has been designed to meet the invasive plant management direction in the R6 2005 ROD that amended the LRMPs.

National Forest Management Act and Land and Resource Management Plan

Current guidance for amending Land and Resource Management Plans (LRMP) is provided by the 2012 Planning Rule (36 CFR Part 219). The 2012 planning rule allows plan amendments to be made using the procedures from the 1982 planning regulations during a transition period (36 CFR § 219.14 (b)(2)). This amendment was first initiated in 2011and has been completed using the 1982 rule procedures.[6]

The amendment itself is discussed at FEIS, Chapter 2.3.2; and on page 6 of this ROD.

Four factors were used to determine that this is a non-significant LRMP amendment, as defined by the 1982 rule.

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

These factors are considered as follows:

1. *Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.*

These LRMP amendments enhance our ability to address invasive species management objectives but does not alter multiple-use goals and objectives on the Malheur National Forest or Ochoco National Forest to any extent.

[6] Under the 2012 Planning Rule (Title 36, Code of Federal Regulations, Part 219–Planning) the responsible official may complete and approve the plan revision in conformance with the provisions of the prior planning regulation, including the transition provisions of the reinstated 2000 rule (36 CFR part 299, published at 36 CFR parts 200 to 299, revised as of July 1, 2010). The transition provisions allow the use of the 1982 planning procedures (See CFR parts 200 to 299, Revised as of July 1, 2000). See the following hyperlink for the 1982 planning procedures http://www.fs.fed.us/emc/nfma/includes/nfmareg.html

2. *Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management*

The amendment would not change any LRMP management area boundaries or management prescriptions on the Malheur National Forest (or Snow Mountain District of the Ochoco National Forest). Amending the standard will not change the multiple-use goals and objectives for long-term land and resource management within the project area.

3. *Minor changes in standards and guidelines.*

The LRMP amendments authorize the use of a registered herbicide, aminopyralid. This herbicide is not currently listed among the ten herbicides approved by the Regional Forester in 2005 (R6 2005 ROD). The Risk Assessment for aminopyralid (SERA 2007) was completed subsequently and demonstrates that use of this herbicide will not pose new or significant risks compared to the ten already approved. FEIS table 21 (Chapter 3.1.2) shows a comparison between aminopyralid and the herbicides already approved. Aminopyralid is generally a lower risk herbicide and the proposed use will not pose additional risks to human health or the environment.

4. *Opportunities for additional projects or activities that will contribute to achievement of the management prescription.*

The LRMP amendment allows more effective and efficient treatment of invasive plants by adding aminopyralid to the list of approved herbicides on the Malheur National Forest. Aminopyralid is an herbicide that is very effective for most of the invasive plant species found within the Malheur National Forest.

It was developed specifically for wildland use and is effective at low rates. It requires less restrictions than most of the other herbicides already approved in the LRMP (for instance it can be broadcast sprayed to the water's edge, which will improve treatment effectiveness and efficiency relative to other herbicides).

Authorizing the use of aminopyralid will not foreclose on opportunities for additional projects or activities that will contribute to achievement of the management prescription. It will make those projects more effective in controlling invasive plants.

Finding

On the basis of the information and analysis contained in the FEIS and all other information available as summarized above, I have determined that selecting alternative B will result in a non-significant amendment to the Malheur and Ochoco National Forest Land and Resource Management Plans. This amendment will apply to all invasive plant treatments within the project area.

Endangered Species Act of 1973

My decision is consistent with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, 87 Stat. 884).

Plants

The United States Fish and Wildlife Service (USFWS) website indicates that whitebark pine (*Pinus albicaulis*) occurs in Baker and Grant County. This species is currently a candidate for federal listing. Whitebark pine is found throughout western North America in subalpine habitats,

usually near the timberline (above 6,500 feet altitude). The plant association group where it occurs is cold upland coniferous forest. Sites are usually fairly dry with thin, rocky, cold soils. It is found from Canada south to central California, and east to Wyoming and Colorado. It occurs on all Blue Mountain Forests, including at scattered sites on the Malheur NF. Very few documented invasive plant sites occur in high elevation dry sites. Therefore, it is unlikely that any invasive plant treatments will occur in areas where whitebark pine is found.

The USFWS website indicates that Malheur wire lettuce (*Stephanomeria malheurensis*) occurs in Harney County. This species is federally listed as endangered. It is found in a very limited area 35 miles south of the southern boundary of the Malheur National Forest. It grows only on volcanic tuffaceous soils. It is highly unlikely that there is any potential habitat for this species on the Malheur National Forest.

The USFWS website indicates that Howell's spectacular thelypody (*Thelypodium howellii ssp. spectabilis*) occurs in Baker County. This species is federally listed as threatened. It is found in a very limited area of the Baker Valley. The closest known population is over 35 miles northeast of the Malheur National Forest. This species grows only at relatively low elevations on moist alkaline plains, and in alkaline river valleys. It is usually found with black greasewood (*Sarcobatus vermiculatus*). All National Forest System land located on the Malheur National Forest in Baker County is in relatively high elevation in forested or open sub-alpine habitat types; therefore, potential habitat for this species is unlikely to be found. The USFWS website does not list any plants for Crook or Malheur Counties.

For these reasons, consultation with the United States Fish and Wildlife Service regarding federally listed plants was not conducted.

Fish

For federally listed species (steelhead, bull trout) and essential fish habitat (Chinook salmon), the potential for short-term adverse effects is greatest in four watersheds within the project area: Big Creek, Camp Creek, Middle South Fork John Day River, and Upper Middle Fork John Day River. Sediment produced from treatments in riparian areas, especially manual treatments, may affect listed fish in the short term. However, these impacts are expected to be minor and discountable. The effects from sediment were further reduced with the addition of pdf E3 that provides for some erosion control in disturbed riparian areas.

Potential effects to habitat indicators are not likely to adversely affect fish and their designated critical habitat. Consultation will be completed with U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) on my selected alternative prior to a final agency decision. Consultation is underway with FWS and NMFS. This ROD will not be signed and action will not occur on the ground until consultation is completed.

Wildlife

The wildlife biological assessment considered my decision's effects on Canada lynx and greater sage-grouse. Canada lynx is listed as "Threatened," and greater sage-grouse is proposed for listing under the Endangered Species Act.

Canada lynx is not present in the project area. Lynx have not been documented on the Forest and suitable habitat will be unaffected by treatments. Greater sage-grouse habitat exists in the southeast portion of the Forest. Treatments in this area are not likely to affect sage brush or sage-grouse.

Gray wolf (Rocky Mountain Distinct Population Segment (DPS)) have been delisted (USFWS 2007a, USFWS 20011a) and are currently managed as Region 6 sensitive species. The gray wolf outside the Rocky Mountain DPS, which is federally endangered, does not occur within the project area.

No Section 7 consultation is required for any ESA listed wildlife species for this project.

Wilderness Act of 1964

My decision is consistent with the Wilderness Act of 1964 (16 U.S.C. 1131-1136; 78 Stat. 890). Our most current invasive species surveys have documented 2.2 acres of invasive plant infestations at 8 locations in the Malheur National Forest's congressionally designated Wilderness areas. The wilderness surveys are not considered to be complete and ongoing awareness and additional surveying will be essential for managing invasive species within these special areas. In addition, invasive plant sites occur at or near some of the wilderness trail heads and on roads leading to, and adjacent to, the wilderness areas. It is likely more infestations will arise in the future. Higher use levels, such as near trail heads, along trails, in riparian areas, in recent burns, or in concentrated use campsites are known vectors for spread.

Invasive species will continue to be pulled by hand or hand tools where practical. Cultural, mechanical and motorized control methods will not be utilized in wilderness areas. Herbicide application will be used in accord with the project design feature (FEIS, table 10, D1), by using non-motorized methods, such as spot spraying with backpack or mule packed application equipment.

Roadless Area Conservation Rule

My decision is consistent with the Forest Service's Roadless Area Conservation Rule (36 CFR Part 294, Subpart B, 66 FR 9, pp. 3244-3273, 1/12/2001). Current invasive plant infestations in inventoried roadless areas total 25 acres comprised of 50 known locations. Additional infestations will most likely occur in areas receiving heavier visitor use, such as along trails, in riparian zones, in concentrated campsites, and in recent burns.

By utilizing the appropriate project design feature and treatment methods, it is anticipated invasive species infestations in inventoried roadless areas will be eliminated, reduced, and the rate of spread retarded.

Infestation sites in inventoried roadless areas will be treated by hand pulling, mechanical, motorized (where accessible), cultural, and herbicide application. Depending on the chosen alternative the treatment method will vary among alternative by the method and herbicide used.

Wild and Scenic Rivers Act

My decision is consistent with the Wild and Scenic Rivers Act (16 USC 1271-1287; 82 Stat. 906). Current invasive plant surveys in congressionally designated Wild and Scenic River corridors indicate infestations totaling 0.9 acres. Additional infestation will most likely be associated with areas of heavier use, such as near trail heads, along the river riparian zones, along trail, in concentrated campsites, and in recent burns.

By utilizing the appropriate project design feature treatment methods it is anticipated invasive species infestations will be eliminated, reduced, and the rate of spread retarded.

National Historic Preservation Act of 1966

My decision is consistent with the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.; 80 Stat. 915) because it will have no potential to affect historic resources. The USDA Forest Service, Advisory Council on Historic Preservation (ACHP), and the Oregon State Historic Preservation Office (SHPO), have a 2004 programmatic agreement addressing the management of cultural resources on national forests in the State of Oregon. There are several actions that were determined to have no potential to affect historic properties. Examples of these actions include invasive plant species eradication through the application of herbicides and hand removal (including hand tools such as shovels to dig up roots); recurrent brushing (hand, machine, chipping) activities to control vegetation within clearing limits of existing roads, trails, parking lots, and power line corridors; mulching and re-vegetating bare, erosion-prone surfaces such as cuts and fills; and re-introduction of endemic or native floral species into their historic habitats.

Migratory Bird Treaty Act of 1918 and Executive Order 13186

My decision is consistent with the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; 40 Stat. 755) and Executive Order 13186. There will be no reduction in native vegetation, and all alternatives will help to reduce invasive plants and maintain migratory bird habitat.

Irreversible or Irretrievable Impacts

No irreversible or irretrievable uses of resources are associated with this project. This project restores native vegetation in areas where non-native plants have been introduced. Herbicide treatments in accordance with the alternatives will have relatively short-lived impacts; effects on non-target species will be minimized; such effects will not be permanent. No adverse impacts on roadless areas or degradation of roadless area quality will occur.

Long-term Productivity

Soils will be protected in this project and no loss of long-term productivity is predicted. The no-action alternative could have negative impacts on long-term productivity if invasive plants become so dense as to change soil characteristics, and capacity for restoration to desirable plant communities is lost.

The natural resources issues associated with this project have been resolved through adherence to project design feature (pdfs) that reduce or eliminate the potential for adverse effects. However, some adverse effects are inherent to invasive plant treatments and cannot be avoided. These include:

- Taxpayers will likely be responsible for the costs of some if not all of the treatments.
- Herbicide toxicity exceeding thresholds of concern are unlikely, but possible in the event of a large herbicide spill. The pdfs make the potential for a large spill extremely unlikely.
- Minor to moderate physical injuries during forestry work are possible.
- There may be temporary local effects on some groups of soil micro-organisms that are sensitive to certain herbicides. However, the pdfs address the potential for long-term impact to soil organisms or productivity.

- Some common non-target plants are likely to be killed by their close proximity to treatments. This is most likely with broadcast herbicide treatments and less likely (but possible) for all other treatment methods. The adverse effects of the invasive plants themselves far outweigh the potential for adverse effects of treatment.

Energy Requirements and Conservation Potential

No unusual energy requirements are associated with this project. No unusual equipment will be used.

Prime Farmlands

No prime farmlands will be adversely affected by this project. There could be a beneficial impact to the extent that the alternatives reduce the potential for invasive plant spread from the Malheur National Forest to prime farmlands.

Executive Orders 11988 and 11990: Floodplains and Wetlands

Floodplains and wetlands will not be adversely affected by this project. As discussed in Chapter 3.4 of the FEIS, adverse effects to water quality and the beneficial uses of water will be negligible. The extent of treatment and potential for water contamination is low, and all alternatives are designed to protect water resources on the Malheur National Forest.

Executive Order 13112: Invasive Species

This project specifically addresses the duties of federal agencies to manage invasive plants. Specifically:

> Sec. 2 (a)(2) (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Executive Order 12898: Environmental Justice

Executive Order #12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, directs federal agencies to address effects accruing in a disproportionate way to minority and low income populations. FEIS, Chapter 3.2.3 discusses the potential impacts of this project on these groups. The R6 2005 FEIS noted that some minority

groups may be disproportionately exposed to herbicides, either because they are disproportionately represented in the pool of likely forest workers, or in the pool of special forest product or subsistence gatherers. The R6 2005 FEIS suggested that Hispanic/Latino forest workers and American Indians are minority groups that could be disproportionately affected by herbicide use. For this project, Asian matsutake mushroom pickers and others who collect or use special forest products may also be disproportionately affected.

The potential exposures and effects to minority groups who apply herbicides or gather or use forest products have been evaluated under the worker and public herbicide exposure analysis sections of the FEIS (Chapter 3.2). Even given plausible inadvertent acute or chronic exposures, minority forest workers, special forest product harvesters, and subsistence gatherers are not likely to be exposed to a dose that exceeds a threshold of concern. Project design features requiring public and tribal notification, use of dye in spray mixes, on-the-ground signing, and restrictions on herbicide and surfactant use will further reduce the potential for exposure.

Executive Order 13443: Facilitation of Hunting Heritage and Wildlife Conservation

This order was signed on August 16, 2007 and directs Federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. The project is consistent with this order by improving wildlife habitat through the reduction of invasive plant infestations and the maintenance of native browse.

Environmentally Preferred Alternative

Alternative B is the environmentally preferred alternative in accordance with Council on Environmental Quality (CEQ) regulations (40 CFR Part 1505.2 (b)). Alternative B is preferable because it will most effectively reduce the presence and influence of invasive plants on National Forest System lands. It will also do the most to protect and allow for re-establishment of native plant ecosystems that have been or are in danger of displacement by invasive plant populations. This alternative utilizes herbicides and herbicide application methods to accomplish the project purpose and need. The project design features, herbicide use buffers and other limitations are intended to minimize risks to people and the environment, while allowing for timely and effective invasive plant treatment.

Pre-Decisional Administrative Review or Objection Opportunities

My decision selects a project or activity implementing a land management plan that is not authorized under the Healthy Forests Restoration Act of 2003 (Pub. L. 108-148, 117 Stat 1887). Therefore, my decision to authorize this project and effect non-significant LRMP amendments is subject to pre-decisional administrative review and objection pursuant to subparts A and B of 36 CFR Part 218, subparts A and B.

The Malheur National Forest Site-Specific Invasive Plants Treatment Project was originally scoped under the provisions of 36 CFR Part 215. For this project, individuals or organizations

who submitted specific, written comments in response to scoping conducted under 36 CFR Part 215 or provided comments to the draft environmental impact statement will be considered to have standing to object under 36 CFR Part 218, Subparts A and B.

Issues raised in objections must be based on previously submitted timely, specific written comments regarding the proposed project unless the issue is based on new information arising after the designated comment opportunities.

The following address should be used for objections sent by regular mail: Objection Reviewing Officer, USDA Forest Service, Pacific Northwest Region, Pacific Northwest Region, USDA Forest Service, Attn: 1570 Appeals and Objections, PO Box 3623, Portland, OR 97208-3623. Objections delivered by mail must be received before the close of the fifth business day after the objection filing period.

Objections sent by private carrier or hand delivery must go to: Objection Reviewing Officer, USDA Forest Service, Pacific Northwest Region, 1220 SW 3rd Avenue, Portland, OR 97204. Hand deliveries can occur between 8:00 AM and 4:30 PM, Monday through Friday except legal holidays.

Objections can be faxed to the Objection Reviewing Officer, Attn: 1570 Objections at (503)-808-2339The fax coversheet must include a subject line with “Malheur National Forest Site-Specific Invasive Plants Treatment Project” and should specify the number of pages being submitted.

Electronic objections must be submitted to the Objection Reviewing Officer via email to objections-pnw-regional-office@fs.fed.us, with “Malheur National Forest Site-Specific Invasive Plants Treatment Project” in the subject line. Electronic submissions must be submitted in a format that is readable with optical character recognition software (e.g., MS Word, PDF, Rich Text Format) and be searchable. An automated response should confirm your electronic objection has been received.

The objection must meet the content requirements of 36 CFR § 218.8(d), and include the following information: 1) the objector’s name and address, with a telephone number or email address, if available; 2) a signature or other verification of authorship upon request (a scanned signature for email may be filed with the objection); 3) when multiple names are listed on an objection, identification of the lead objector as defined in 36 CFR § 218.2 (verification of the identity of the lead objector shall be provided upon request); 4) the name of the project being objected to, the name and title of the responsible official, and the name of the national forest and ranger district on which the project will be implemented; 5) a description of those aspects of the project addressed by the objection, including specific issues related to the project and, if applicable, how the objector believes the environmental analysis or decision specifically violates law, regulation, or policy; suggested remedies that would resolve the objection; and supporting reasons for the reviewing officer to consider; and 6) a statement that demonstrates the connection between prior specific written comments on the particular project or activity and the content of the objection, unless the objection concerns an issue that arose after the designated opportunity for formal comment. With certain exceptions (36 CFR § 218.8(b)), all documents referenced in the objection must be included with the objection.

Objections, including attachments, must be filed within 45 days from the publication date of a “Legal Notice of the Opportunity to Object” for this project in the *Blue Mountain Eagle*, the newspaper of record (78 FR 241, p. 76101, 12/16/2013). Attachments received after the 45-day objection period will not be considered. The publication date in the newspaper of record is the

exclusive means for calculating the time to file an objection. Those wishing to object this project should not rely upon dates or timeframe information provided by any other source.

It is the objector's responsibility to ensure timely filing of a written objection with the reviewing officer pursuant to 36 CFR § 218.9. All objections are available for public inspection during and after the objection process. Responses that do not adhere to these requirements make review of an objection difficult and are conditions under which the reviewing officer may set aside an objection pursuant to 36 CFR § 218.10.

For more information or to request a copy of the FEIS and ROD, please contact Whitney Rapp, Invasive Plant Specialist by telephone at 541-575-3000 or by email at whitneysrapp@fs.fed.us or Joe Rausch, Forest Botanist by telephone at 541-575-3141 or by email at jhrausch@fs.fed.us with "Malheur National Forest Site-Specific Invasive Plants Treatment Project" in the subject line.

Implementation

The Malheur National Forest Site-Specific Invasive Plants Treatment Project may be implemented after the completion of the objection process and immediately upon my issuance of a signed Record of Decision. I will notify interested or affected parties of the availability of this ROD as soon as practicable after signing (36 CFR § 220.5(g)).

Contact Person

For additional information concerning this decision or the Forest Service pre-decisional administrative review and objection process, contact Janet Plocharsky, Forest Environmental Coordinator, Malheur National Forest, by e-mail at jlplocharsky@fs.fed.us or by telephone at 541-575-3390.

STEVEN K BEVERLIN
Forest Supervisor
Malheur National Forest

[DATE]

Attachment 1

Attachment 1 contains the project design features, herbicide use buffers, implementation planning process and decision protocol for the use of herbicides for the selected alternative.

Table 1-1. Project Design Features for the Selected Alternative

PDF Reference	Design Features	Purpose of PDF	Source of PDF
B – Coordination with Other Landowners/Agencies			
B1	Coordinate treatments on neighboring lands and within municipal watersheds. For neighboring lands, base distances on invasive species reproductive characteristics, and current use.	To ensure that neighbors are fully informed about nearby herbicide use and to increase the effectiveness of treatments on multiple ownerships.	A variable distance based on site and species specific characteristics was chosen because it adjusts for various conditions that exist in these areas. All pdfs related to riparian areas and buffer distances will be followed.
C – To Prevent the Spread of Invasive Plants During Treatment Activities			
C1	Ensure vehicles and equipment (including personal protective clothing) does not transport invasive plant materials.	To prevent the spread of invasive plants during treatment activities	Common measure.
D – Wilderness Areas			
D1	No use of black plastic for solarization, no use of motor vehicles or other mechanical transport for access, and no motorized equipment will be used in wilderness areas. Manual treatments or those using non-motorized tools may occur. Herbicide use would be approved by the Regional Forester via a pesticide use proposal.	To maintain wilderness values, e.g., solitude, unimpeded natural processes—and comply with environmental laws and policies.	Wilderness Act, 1990 Malheur National LRMP
E – Non-herbicide Treatment Methods			
E1	Treatments implemented below the ordinary high water mark will be applied from the bank and workers will not walk in flowing streams regardless of treatment method.	To reduce the likelihood of causing negative impacts to fish and fish habitat.	Memorandum of Understanding between WDFW and USDA Forest Service, January 2005.
E2	Fueling of gas-powered equipment with tanks larger than 5 gallons would generally not occur within 150 feet of surface waters. Fueling of gas-powered machines with tanks smaller than 5 gallons may occur up to 25 feet of surface waters.	To protect riparian and aquatic habitats.	Common measure
E3	Within 15 feet of waterbodies, disturbed soils will be tamped down and covered with litter/mulch where available.	To reduce sediment entering aquatic habitats.	ESA Consultation with NMFS and FWS
F – Herbicide Applications			
F1	Alkylphenol ethoxylate-based non-ionic (NPE) and ethoxylated fatty amine (POEA) surfactants	To reduce risks associated with	SERA and Bakke risk assessments

PDF Reference	Design Features	Purpose of PDF	Source of PDF
	would not be used. Vegetable oils/silicone blends that contain alkylphenol ethoxylate ingredients may be used.	surfactants	
F2	The least amount of a given herbicide would be applied as necessary to meet control objectives. In no case will imazapyr use exceed 0.70 lbs. a.i./ac. Broadcast application of clopyralid, glyphosate, picloram, sethoxydim, or sulfometuron methyl will not exceed typical rates across any acre. Spot spray of triclopyr would not exceed typical rates across any acre.	To minimize herbicide exposures of concern to human health.	SERA and Bakke risk assessments
F3	Do not apply herbicides when local weather forecast calls for a ≥ 50% chance of rain, or when wind speed at the site is less than 2 mph or in excess of 8 mph. During application, weather conditions would be monitored periodically by trained personnel. Herbicide application would cease during periods of unexpected rain.	To reduce potential for drift and run off.	These restrictions are typical so that herbicide use is avoided during inversions or windy conditions.
F4	To minimize herbicide drift, use low nozzle pressure; apply as a coarse spray, and use nozzles that minimize fine droplet spray, e.g., nozzle diameter to produce a median droplet diameter of 500-800 microns.	To reduce potential for drift.	These are typical measures to reduce drift. The minimum droplet size of 500 microns was selected because this size is modeled to eliminate adverse effects to non-target vegetation 100 feet or further from broadcast sites (see chapter 3 for details).
F5	No use of sulfonylurea herbicides (chlorsulfuron, sulfometuron methyl and metsulfuron methyl) on dust-laden bare soils. Avoid bare areas >100 sq. ft. with powdery, ashy dry soil, or light sandy soil.	To avoid potential for herbicide drift to affect non-target plants.	Label advisory
F6	When herbicides are applied, a non-toxic blue dye will be used to mark treated areas.	To ensure treated areas are obvious to people and prevent accidental ingestion by plant collectors.	Common measure
F7	Annually review any changes to herbicide regulations nationally, regionally, and locally, based on labels and tools such as Salmon Mapper (http://www2.epa.gov/endangered-species/salmon-mapper).	To ensure herbicide use is in accordance with all future limitations.	ESA Consultation with NMFS and FWS
G – Herbicide Transportation and Handling Safety/Spill Prevention and Containment			
An *Herbicide Transportation and Handling Safety/Spill Response Plan* would be the responsibility of the herbicide applicator. At a minimum the plan would: ▪ Address spill prevention and containment. ▪ Limit the quantity of herbicides transported to treatment sites to the amounts estimated to be needed for any		To reduce likelihood of spills and contain any spills.	FSH 2109.14

PDF Reference	Design Features	Purpose of PDF	Source of PDF
	given day. ▪ Require that impervious material be placed beneath mixing areas in such a manner as to contain small spills associated with mixing/refilling. ▪ Require a spill cleanup kit be readily available for herbicide transportation, storage, and application (minimum FOSS Spill Tote Universal or equivalent). ▪ Outline reporting procedures, including reporting spills to the appropriate regulatory agency. ▪ Ensure applicators are trained in safe handling and transportation procedures and spill cleanup. ▪ Require that equipment used in herbicide storage, transportation, and handling are maintained in a leak proof condition. ▪ Address transportation routes so that traffic, domestic water sources, and blind curves are avoided to the extent possible. ▪ Specify conditions under which guide vehicles would be required. ▪ Specify mixing and loading locations away from water bodies so that accidental spills do not contaminate surface waters. ▪ Require that spray tanks be mixed or washed further than 150 feet of surface water. ▪ Ensure safe disposal of herbicide containers. ▪ Identify sites that may only be reached by water travel and limit the amount of herbicide that may be transported by watercraft.		
H – Soils, Water and Aquatic Ecosystems			
H1	Follow herbicide-use buffers shown below. Tank mixtures would apply the largest buffer as indicated for any of the herbicides in the mixture.	To reduce likelihood that herbicides would enter surface waters in concentrations of concern and ensure that the project does not hamper attainment of riparian management objectives.	Herbicide-use buffers are based on label advisories; SERA risk assessments; and Berg's 2004 study of broadcast drift and run off to streams. Herbicide-use buffers are intended to demonstrate compliance with R6 2005 ROD Standards 19 and 20.
H2	In riparian and aquatic settings, vehicles (including all-terrain vehicles) used to access invasive plant sites, or for broadcast spraying will not travel off roadways, trails, and parking areas if damage to riparian vegetation, soil, and water quality, and aquatic habitat is likely.	To protect riparian and aquatic habitats.	Common protection measure
H3	Avoid using picloram and/or metsulfuron methyl on bare or compact soils, and inherently poor productivity soils that are highly disturbed. Poor soils include shallow soils less than 20 inch depth that lack topsoil and serpentine soils.	To preserve site recovery after disturbance, lessen offsite runoff and leaching. Poor soils will have longer	Label advisory

PDF Reference	Design Features	Purpose of PDF	Source of PDF
		residence times with these persistent herbicides.	
H4	Over any two consecutive calendar years, the sum of all applications in an area of imazapyr, metsulfuron methyl, or picloram would not exceed the maximum application rate for a single broadcast spraying. Aminopyralid would not be broadcast more than once per year. Multiple spot applications are permitted as long as the aggregate of applications is at or below the broadcast application rate.	Reduce potential for accumulation in soil.	SERA Risk Assessments. Based on quantitative estimate of risk from a maximum level of exposure.
H5	Limit herbicide offsite transport on sites with high runoff potential including sites with: shallow seasonal water tables, saturated soils (wet muck and peat soils), steep erosive slopes with shallow soils and rock outcrop, or bare compacted and disturbed soils. Limit runoff by applying herbicide during the dry season with the lowest soil moisture conditions, where > 50% groundcover exists on shallow slope sites, and > 70% on steep slope sites, and/or at reduced rates.	Reduce potential offsite runoff transport of herbicides.	SERA Risk Assessments and Label. Based on quantitative risk for erosion and runoff.
H6	For soils with seasonally high water tables, do not use picloram or triclopyr BEE and limit glyphosate use to aquatic label only.	Reduce the risk for contamination of groundwater and offsite runoff to aquatic habitat and fish.	Label advisory
H7	Do not remove more than 50 percent of the vegetative cover or apply herbicides to more than half the area within 100 feet of a lake or pond in a 30-day period.	Limit the area treated within riparian areas to maintain refugia habitat for reptiles and amphibians.	SERA Risk Assessments. Based on quantitative estimate of risk from maximum herbicide exposure scenario and uncertainty regarding effects to reptiles and amphibians.
H8	Wetlands would be treated when soils are driest. If herbicide treatment is necessary when soils are wet, use aquatic labeled herbicides. Favor hand/selective treatment methods where effective and practical. No more than 10 contiguous acres or fifty percent individual wetland areas would be treated in any 30-day period.	To reduce exposure to herbicides by providing some untreated areas for some organisms to use.	SERA Risk Assessments. Based on quantitative estimate of risk from maximum herbicide exposure scenario and uncertainty in effects to some organisms, and label advisories.
H9	Herbicide use would not occur within 100 feet of wells or 200 feet of spring developments. For stock tanks located outside of riparian areas, use wicking, wiping or spot treatments within 100 feet of the watering source.	To reduce the potential for herbicide delivery to wells and springs that provide drinking	Label advisories and state drinking water regulations http://www.deq.state.or.us/wq/WhpGuide

PDF Reference	Design Features	Purpose of PDF	Source of PDF
		water, and to protect watering systems used for grazing animals.	/ch2.htm.
H10	Use of Triclopyr BEE is only allowed in dry upland areas that are not hydrologically connected to water bodies.	Reduce the risk for contamination of groundwater and offsite runoff to aquatic habitat and fish.	Label and quantitative assessment for risk to aquatic organisms.
I – Vascular and Non-Vascular Plant and Fungi Species of Concern			
I1	A USDA Forest Service botanist would use monitoring results/adaptive management to refine herbicide-use buffers to adequately protect botanical species on the Regional Forester's Sensitive List.	Minimizes repeated effects to sensitive botanical populations, thereby mitigating any long-term effects. Uncertainty about effects on nonvascular plants would be addressed through monitoring.	Herbicide-use buffer sizes for broadcast of most herbicides are based on Marrs 1989 based on tests on vascular plants. Spot and hand/select buffer distances are based on reports from experienced applicators.
I2	Botanical surveys will be conducted to document locations of sensitive plants if suitable habitat is within 100 feet of planned herbicide treatments	To ensure sensitive botanical species are protected and botanical surveys are conducted when appropriate	Forest Service Manual 2670 and applicable federally listed recovery plans
I3	Sensitive plants located within 100 feet of planned ground-based broadcast applications would be covered by protective barrier, or broadcast application would be avoided in these areas (spot or hand herbicide treatment, or non-herbicide methods may be used without covering sensitive plants).	To ensure sensitive botanical species are protected	Forest Service Manual 2670 and applicable federally listed recovery plans
I4	hand/selective methods to treat invasive plants on wet soils within 10 feet of sensitive plant. This design feature does not apply to seasonally wet soils that are dry at the time of treatment.	To ensure sensitive botanical species are protected	Forest Service Manual 2670 and applicable federally listed recovery plans
I6	Monitoring prework review would occur before implementation to ensure that prescriptions, contracts, and agreements integrate appropriate project design features.	To ensure sensitive botanical species are protected	Forest Service Manual 2670 and applicable federally listed recovery plans
I7	Implementation monitoring would occur during implementation to ensure project design features are implemented as planned. An implementation monitoring form will be used to document daily field conditions, activities, accomplishments, and/or difficulties. Contract administration mechanisms would be used to correct deficiencies. Herbicide use will be reported as required by the Forest Service Health Pesticide Use Handbook.	To ensure sensitive botanical species are protected	Forest Service Manual 2670 and applicable federally listed recovery plans

PDF Reference	Design Features	Purpose of PDF	Source of PDF
I8	Effectiveness monitoring would occur during and after treatment to determine whether invasive plants are being effectively controlled and to ensure non-target vegetation, especially sensitive species are adequately protected.	To ensure sensitive botanical species are protected	Forest Service Manual 2670 and applicable federally listed recovery plans
I9	The impacts of herbicide use on some sensitive botanical species are uncertain, especially non-vascular species. To manage this uncertainty, representative samples of herbicide treatment sites adjacent to sensitive botanical species would be monitored. Non-target vegetation within 100 feet of herbicide broadcast treatment sites and 20 feet of herbicide spot and hand treatment sites would be evaluated before treatment, immediately after treatment, and two to three months later as appropriate. Herbicide-use buffers would be expanded if damage is found as indicated by: •Decrease in the population of the species of conservation concern •Leaf discoloration or chlorophyll change •Mortality Monitoring would continue until three post-treatment visits (at one or more sites near each sensitive botanical species) confirm a lack of adverse effects.	To ensure species of listed interest (SOLI) are protected and survey are conducted when appropriate	Forest Service Manual 2670 and applicable federally listed recovery plans
J – Wildlife Species of Local Interest			
J1 Gray Wolf			
J1-a	Treatments within 1 mile of active wolf dens or rendezvous sites would only occur outside the season of occupancy (April 1 through June 30).	Reduce impacts to active dens or rendezvous sites	Federal Register (USDI FWS 2003)
J2 Bald eagle			
J2-a	Noise-producing activity above ambient levels would not occur near known winter roosts and concentrated foraging areas between October 31 and March 31 during the early morning or late afternoon. Disturbance to daytime winter foraging areas would be avoided.	Minimize disturbance and energy demands during the winter.	Bald Eagle Management Guidelines for OR-WA (Dillon 1981); USDI FWS 2007, No, 62 4(d)
J2-b	Treatment of areas within 0.25 mile, or 0.50 mile line-of-sight, of bald eagle nests would be timed to occur outside the nesting/fledging season of January 1 to August 31, unless treatment activity is within ambient levels of noise and human presence (as determined by a local specialist). Occupancy of nest sites (i.e., whether it is active or not) would be determined each year prior to treatments.	Reduce impacts to eagle nests and reproduction.	Bald Eagle Management Guidelines for OR-WA (Dillon 1981) and, USDA Forest Service 2005a
J3 Peregrine Falcon			
J3-a	Seasonal restrictions shall apply to all known peregrine falcon nest sites for the periods and elevations listed below: a. Low elevation sites (1000-2000 ft.) – Jan 1st	Reduce disturbance to nesting birds and protect eggs and nestlings.	Pagel 2006 Peregrine falcon nest site data, 1983-2006.

PDF Reference	Design Features	Purpose of PDF	Source of PDF
	to July 1st b. Medium elevation sites (2001-4000 ft.) – Jan 15th to July 31st c. Upper elevation sites (greater than 4000 ft.) – Feb 1st to Aug 15th These restrictions may be waived if the site is unoccupied or if nesting efforts fail and monitoring indicates no further nesting behavior. Seasonal restrictions shall be extended if monitoring indicates late season nesting, asynchronous hatching leading to late fledging, or recycle behavior which indicates that late nesting and fledging will occur. Protection would be provided until at least two weeks after all young have fledged.		
J3-b	All invasive plant treatments would be restricted within 0.5 miles of peregrine falcon nests (primary nest zone) during the nesting season (described above).	Reduce disturbance to nesting birds and young.	Pagel 2006 Peregrine falcon nest site data, 1983-2006.
J3-c	Invasive plant treatments involving motorized equipment and/or vehicles would be seasonally prohibited within the secondary nest zone (0.5 miles to 1.5 miles of known nest sites) during the nesting season. This may include activities such as mulching, chainsaws, vehicles (with or without boom spray equipment) or other mechanically-based invasive plant treatment.	Reduce disturbance to nesting birds and young.	Pagel 2006 Peregrine falcon nest site data, 1983-2006.
J3-d	Non-mechanized or low disturbance invasive plant activities (such as spot spray, hand pull, etc.) may occur within the secondary nest zone (0.5 miles to 1.5 miles of known nests) during the nesting season, but would be coordinated with the wildlife biologist on a case-by-case basis to determine potential disturbance to nesting falcons and identify mitigating measures, if necessary.	Reduce disturbance to nesting birds and young.	Pagel 2006 Peregrine falcon nest site data, 1983-2006.
J3-e	Picloram and clopyralid would not be used within 1.5 miles of a peregrine nest more than once per year.	Minimize peregrine exposure to HCB	Pagel 2006 Peregrine falcon nest site data, 1983-2006.
J4 Greater Sage Grouse			
J4-a	Glyphosate use would be limited to the typical application rate (within greater sage grouse habitat).	Minimize exposure to herbicides and surfactants that could pose a risk.	Malheur Invasive Plant Biological Evaluation.
J4-b	Human activities within 0.3 mile of leks will be prohibited from the period of one hour before sunrise until four hours after sunrise and one hour before sunset until one hour after sunset from February 15 - May 15.	Minimize disturbance to breeding grouse	Connelly et al. 2000, USDI FWS 2003.
J4-c	Do not conduct any vegetation treatments or improvement projects in breeding habitats from February 15 – June 30.	Minimize disturbance to breeding grouse	Connelly et al. 2000
J5 Columbia Spotted Frog			

PDF Reference	Design Features	Purpose of PDF	Source of PDF
J5-a	Avoid broadcast spraying of herbicides, or spot spraying of sulfometuron methyl within 100 feet of occupied or suitable spotted frog habitat. Follow herbicide-use buffers in wetlands. Treatment methods, timing and location will be coordinated with a local biologist prior to implementation.	Reduce impacts to the Columbia spotted frog.	Appendix P of the R6 2005 FEIS; SERA 2003, 2004; Bakke 2003
J6 Silver-bordered fritillary			
J6-a	Within occupied sites, apply sensitive plant design features to host/nectar plant species.	Reduce the likelihood host/nectar plants would be affected.	Malheur Invasive Plant Biological Evaluation.
J6-b	Do not use ester (BEE) formulations of triclopyr ester within occupied silver-bordered fritillary habitat	Minimize exposure of herbicides and surfactants that could pose a risk to the silver-bordered fritillary.	Malheur Invasive Plant Biological Evaluation.
J7 Pygmy Rabbit			
J7-a	Within suspected burrow areas, activities will be restricted to manual techniques. Treatment methods, timing, and location will be coordinated with a local biologist.	Minimize chances a burrow would collapse.	Malheur Invasive Plant Biological Evaluation.
J8 Upland Sandpiper			
J8-a	In order to avoid disturbance or potential trampling of nesting upland sandpipers, no treatment would occur on sites that have historic or recent documentation of upland sandpipers during the nesting season (April 1st to August 1st), unless the site has been surveyed and no nesting is occurring.	Minimize likelihood that nests would be disturbed during treatment.	Malheur Invasive Plant Biological Evaluation.
J9 Grasshopper Sparrow			
J9-a	In order to avoid disturbance or potential trampling of nesting birds during the nesting season (May 1st to August 1st), no treatment would occur on sites where grasshopper sparrows have been documented.	Minimize likelihood that nests would be disturbed during treatment.	Malheur Invasive Plant Biological Evaluation.
J10 Harney Basin Duskysnail			
J10-a	If an occupied site is proposed for treatment, a local biologist would be consulted to determine protection measures, if necessary. These measures may include limitations on vehicle entry, modifications to treatment type or timing, or implementation of buffers.	Minimize likelihood that snails would be harmed from treatment	Malheur Invasive Plant Biological Evaluation
J11 Featured Species: Raptors and Osprey			
J11-a	Active raptor nest sites will be protected during implementation. If a raptor nest is found within 0.50 mile of a site proposed for treatment, a wildlife biologist will be consulted to determine appropriate seasonal restriction dates and buffer distances, if necessary.	Reduce impacts to raptor nesting and reproduction.	Malheur and Ochoco LRMP

PDF Reference	Design Features	Purpose of PDF	Source of PDF
J12 Big game			
J12-a	Restrict off-highway vehicle use within MA 41 (big game winter range) between December 1 and April 1.	Reduce disturbance to wintering elk and deer.	Malheur LRMP
J12-b	To prevent harassment in designated calving areas, restrict off-highway vehicles and other motorized traffic use to designated roads and trails from May 1 to June 31.	Reduce impacts during elk calving.	Malheur LRMP
J13 Yellow-billed Cuckoo			
J13-a	If a known breeding site is proposed for treatment, a biologist will be contacted to determine protection measures. These measures may include limitations on vehicle entry, modifications to treatment type or timing, or implementation of buffers. Protection measures would be coordinated with the USFWS.	Minimize likelihood that nests would be affected by treatment	Professional judgment
K – Public Notification			
K1	High use areas, including administrative sites, developed campgrounds, visitor centers, and trailheads would be posted in advance of herbicide application. These areas may remain open, or could be closed during and immediately after herbicide application. Postings would indicate the date of treatments, the herbicide used, and when the areas are expected to be clear of herbicide residue. See also L2 for special products and M1 for cultural plants.	To ensure that no inadvertent public contact with herbicide occurs.	These are common measures to reduce conflicts.
K2	The public would be notified about upcoming herbicide treatments via the local newspaper or individual notification, fliers, and posting signs. Forest Service and other websites may also be used for public notification.	To ensure the public is informed about upcoming herbicide treatments.	R6 2005 ROD Standard 23 (see table 1).
L – Special Forest Products			
L2	Specific edible/medicinal plant collection areas, along with specific areas of cultural or spiritual value, may be identified by the public. These areas would be specifically posted prior to spraying. Postings would indicate the date of treatments, the herbicide used, and when the areas are expected to be clear of herbicide residue.	To minimize potential for public exposure to herbicides and acknowledge the public's need to know whether herbicide may be used in specific areas where they harvest medicinal or edible plants.	R6 2005 ROD Standard 23
L4	Flyers indicating upcoming herbicide treatments and explaining the use of blue dye may be included with mushroom and special forest product collection permits, in multi-lingual formats if necessary. See section K.	To minimize potential for public exposure to herbicides	R6 2005 ROD Standard 23

PDF Reference	Design Features	Purpose of PDF	Source of PDF
M – American Indian Tribal and Treaty Rights and Archaeology			
M1	American Indian tribes would be notified annually as treatments are scheduled so that tribal members may provide input and/or be notified prior to gathering cultural plants. Cultural plants in areas identified by tribes would be buffered as above for botanical species of concern; (see section I2, I3, and I4).	To ensure that no inadvertent public contact with herbicide occurs and that cultural plants are fully protected.	Government to government agreements between American Indian tribes and the Malheur National Forest.
N – Range Resources			
N2	Permittees will be notified of annual treatment actions at the annual permittee operating plan meeting, and/or notified within 2 weeks of planned treatments of infestations > 1 acre in size.	To ensure permittee has knowledge of activities occurring within the allotment	Common practice
N3	Follow most current EPA herbicide label for grazing restrictions.	To ensure grazing animals are not exposed to chemicals	EPA labeling requirements

Herbicide-use buffers (in feet) for streams, wetlands, lakes, ponds and roadside ditches with water present at the time of treatment. Measured in feet from the edge of surface water. Herbicides in bold are those most likely to be used.

Table 1-2. Herbicide Use Buffers When Water is Present

Herbicide	Streams, wetlands, lakes and ponds and hydrologically connected roadside ditches with surface water present	
	Broadcast	**Spot/Hand/Select**
Aquatic Glyphosate	50	Water's edge
Aquatic Imazapyr	50	Water's edge
Aquatic Triclopyr-TEA	Not Allowed	15
Aminopyralid	**Water's edge**	**Water's edge**
Clopyralid	100	15
Imazapic	100	15
Metsulfuron Methyl	**100**	**15**
Imazapyr	100	50
Sulfometuron Methyl	100	50
Chlorsulfuron	**100**	**50**
Picloram	100	50
Sethoxydim	100	50
Glyphosate	100	50
Triclopyr-Bee	Not Allowed	150

Herbicide-use buffers (in feet) for stream channels that are dry at the time of treatment. Measured in feet from the edge of the channel as defined by the high water (bankfull) mark. Herbicides in bold are those most likely to be used.

Table 1-3. Herbicide Use Buffers When Water is Not Present

Herbicide	Intermittent and Ephemeral Streams (Dry at time of treatment)	
	Broadcast	**Spot/Hand/Select**
Aquatic Glyphosate	Bankfull	No buffer
Aquatic Imazapyr	Bankfull	No buffer
Aquatic Triclopyr-TEA	Not Allowed	Bankfull
Aminopyralid	**No Buffer**	**No Buffer**
Imazapic	50	Bankfull
Metsulfuron Methyl	**50**	**Bankfull**
Clopyralid	50	Bankfull
Imazapyr	50	15
Sulfometuron Methyl	50	15
Chlorsulfuron	**50**	**15**
Picloram	100	50
Sethoxydim	100	50
Glyphosate	100	50
Triclopyr-BEE	Not Allowed	150

Implementation Planning

This section outlines the process that would be used to ensure that the selected alternative is properly implemented. The methodology follows integrated weed management principles (R6 2005 FEIS, 3-3) and satisfies pesticide use planning requirements atFSM 2150 and FSH 2109.14. It applies to currently known infestations and new sites found within or outside currently mapped treatment areas during ongoing inventory. Appropriate Forest Service staff would develop annual treatment prescriptions to ensure that project design features are appropriately incorporated. This process applies to invasive plant treatments planned as a part of other projects (such as a mitigation measure associated with a thinning or road decommissioning) or on a stand-alone basis. The priority, strategy, and timing of treatment are influenced by the potential for disturbance, especially where seed beds are in the soil and invasive plant growth may be triggered by the disturbance. See chapter 3.1.5 for more information about the spread of invasive plants along identified vectors. The range of treatment methods considered herein are based on effective treatments (common control measures, see table 9) needed for the current inventory of 18 primary target species across the Malheur National Forest. New situations could lead to the need for additional integrated treatment methods within the scope of the selected alternative.

1. Characterize invasive plant infestations to be treated

1. Identify target species, location, density, and extent.
2. Identify adjacent land uses and vectors for invasive plant spread
3. Determine treatment objective and priority.

2. Develop site-specific prescriptions

- Consider whether active restoration may be necessary
- Review the common control measures and update as needed using Integrated Weed Management principles. Identify effective integrated treatment method depending on the target species and surrounding environment.
- Determine whether herbicides are needed and which application method is needed based on the biology of the target species and size and distribution of the infestations. See figure 4 below showing how the decision to use herbicides would be made on a case by case basis.
- Apply appropriate pdfs based on:
    - Past treatment history and response to past treatment
    - Proximity to species of local interest or their habitats
    - Proximity to streams, lakes, wetlands
    - Proximity to vectors and potential for persistent disturbance;
    - Surrounding National Forest land uses and activities
    - Soil conditions
    - Municipal watersheds and/or domestic water intakes
    - Recreation areas, special forest product and special use areas
    - First-choice or other effective herbicide
    - Application rate and method

Once the treatment prescription has been refined, we will:

- Complete Form FS-2100-2 Pesticide Use Proposal. This form lists treatment objectives, specific herbicide(s) that would be used, the rate and method of application, and pdfs that apply.
- Determine need for pre-project surveys for species of local interest and/or their habitats.
- Coordinate with adjacent landowners, water users, agencies, partners, and tribal governments.
- Initiate public notification

3. Accomplishment and Compliance Monitoring

- Develop a project work plan for herbicide use as per FSH 2109.14.3. This work plan presents organizational and operational details including the precise treatment objectives, equipment, materials, and supplies needed; the herbicide application method and rate; field crew organization and lines of responsibility; and interagency coordination.
- Ensure contracts and agreements include appropriate prescriptions and that herbicide ingredients and application rates meet label requirements, R6 2005 ROD, and site-specific pdfs. Contracts and agreements will include the appropriate pdfs, herbicide-use buffers, including herbicide and additive limitations.
- Document and report herbicide use and certified applicator information in the National pesticide use database, via the Forest Service Activity Tracking System (FACTS). A pesticide use report extracts data from FACTS.

4. Post-treatment Monitoring and Recurring Treatments

- Monitoring would occur during implementation to ensure project design features are implemented as planned. Post-treatment reviews would occur to determine whether treatments are effective and whether or not passive/active restoration is occurring as expected.
- Contract administration and other existing mechanisms would be used to correct deficiencies. Herbicide use would be reported as required by the FSH 2109.14 and FACTS.
- Post-treatment monitoring would also be used to detect whether pdfs were appropriately applied, and whether non-target vegetation impacts were within tolerable levels.
- Prescriptions would be refined over time based on post-treatment results as long as treatments remain within the scope of the EIS. For instance, an invasive plant population treated with a broadcast herbicide may be retreated with a spot spray, or later manually pulled, once the size of the infestation is sufficiently reduced following the initial treatment. Another example would be the use of another herbicide if the first choice is not effective.
- Treatment buffers would be expanded if damage was found outside herbicide-use buffers as indicated by a decrease in the size of any non-target plant population, leaf discoloration or chlorophyll change, or mortality to individual species of local interest or non-target vegetation. The findings would be applied to herbicide-use buffers for waterbodies. Herbicide-use buffers may be adjusted for certain herbicides/application methods and not others, depending on results.

The Decision to Use Herbicides

Is the target invasive species population associated with a size, phenology, density, or distribution that warrants herbicide use (alone or in combination with other methods)?

Yes: To determine appropriate herbicide, review common control measures coupled with local experience. Use first choice or other effective herbicides based on their properties, risks, label directions, and project design features. Consider non-target vegetation surrounding treatment sites and use more selective herbicides as appropriate. Consider soil conditions at the treatment site. Consider previous treatments that have occurred on the site. Were they effective? Would another herbicide or combination of methods be more effective? Consider wildlife habitats in the area and implement seasonal restrictions if required. Consider proximity to water and fish species of conservation concern.

No: Would use of herbicides substantially increase cost-effectiveness of treatment? Consider whether volunteers may be available to reduce the cost of manual treatments.

> **Yes:** To determine appropriate herbicide, review common control measures coupled with local experience. Use first choice or other effective herbicides based on their properties, risks, label directions, and project design features. Consider non-target vegetation surrounding treatment sites and use more selective herbicides as appropriate. Consider soil conditions at the treatment site. Consider previous treatments that have occurred on the site. Were they effective? Would another herbicide or combination of methods be more effective? Consider wildlife habitats in the area and implement seasonal restrictions if required. Consider proximity to water and fish species of conservation concern.
>
> **No:** Use non-herbicide (manual, mechanical biological or cultural) methods.

Process for Prescribing Broadcast Herbicide Application Method

Do the size, density, and/or distribution of invasive plants warrant broadcast application?

No: Use application methods other than broadcasting

Yes: Is the Site within 100 feet of streams and water bodies? Does the area provide habitat for fish species of conservation concern?

> **Yes:** Apply buffers and other pdfs as appropriate. If broadcast is no longer an acceptable method given pdfs, choose an application method other than broadcasting.
>
> **No:** Are there botanical species of conservation concern within 100 feet of the proposed broadcast site?
>
> > **Yes:** survey as needed for botanical species of concern within suitable habitats. Apply botanical buffers as appropriate. Broadcast may still be acceptable if botanical species of conservation concern are covered by barriers. Apply remaining project design features. If broadcast is no longer an acceptable method, choose an application method other than broadcasting.